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VOLUME 2 OF 2

RESULTS OF WIND TUNNEL TESTS  
OF AN ASRM CONFIGURED 0.03 SCALE SPACE  
SHUTTLE INTEGRATED VEHICLE MODEL (47-OTS)  
IN THE AEDC 16-FOOT TRANSONIC WIND TUNNEL  
(IA613A)

## SPACE SHUTTLE AEROTHERMODYNAMIC DATA REPORT

(NASA-CR-185697) RESULTS OF WIND  
TUNNEL TESTS OF AN ASRM CONFIGURED  
0.03 SCALE SPACE SHUTTLE INTEGRATED  
VEHICLE MODEL (47-OTS) IN THE AEDC  
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Laura Gross  
Johnson Space Center  
Management Services Division  
Documentation Management Branch  
Mail Code JM2  
Houston, TX 77058

Subject: Space Shuttle Wind Tunnel Test Data Report Documentation - Contract  
NAS9-17840

Dear Ms Gross:

Enclosed are two copies each of the following Space Shuttle Wind Tunnel Test Data  
Reports:

TRATION

EMS

7840

CE  
(TS)  
NEL

## WIND TUNNEL TEST SPECIFICS:

Facility Test No.	PWT-TF-829
SSV Test No.	IA613A
Model Number/Scale:	47-OTS/0.03
Test Dates:	March 27 through April 12, 1991
Test Hours: Occupancy:	94.2 Hours
Air On:	35.8 Hours
No. of Runs/Data Points:	464/1887

## FACILITY COORDINATOR:

1st. Lt. Gary F. Wesselmann AEDC/DOFA Proj. Manager  
Arnold Engrg. Development Center/DOF PWT-16T  
Arnold Engineering Development Center  
Arnold AFS, Tennessee 37389-5000

Phone (615) 454-3161

## PROJECT ENGINEERS:

R. H. Spangler  
J. S. Cunningham  
S. R. Johnson  
Rockwell International  
12214 Lakewood Blvd.  
Downey, CA 90241  
Phone (310) 922-1935

Randy Hobbs  
John Black  
Arnold Engineering  
Arnold Engrg. Dev. Center  
Arnold Air Force Base  
Phone: (615) 454-6679

## AERODYNAMIC ANALYSIS ENGINEERS:

L. P. LeBlanc  
J. B. Bennett  
D. K. Rau  
Rockwell International  
12214 Lakewood Blvd.  
Downey, CA 90241  
Phone (310) 922-5369

## AERO ACOUSTIC ANALYSIS ENGINEERS:

P. H. Schuetz  
Rockwell International  
Space Systems Division  
Downey, CA 90241  
(310) 922-3552

## DATA MANAGEMENT SERVICES:

Approved: J. L. Glynn  
J. L. Glynn, Mgr.  
Data Management Services

Concurrence: D. E. Poucher  
D. E. Poucher, Mgr.  
CTAS Michoud Engrg. Office



**Results of Wind Tunnel Tests  
of An ASRM Configured 0.03-Scale  
Space Shuttle Integrated Vehicle Model (47-OTS)  
In The AEDC 16 Foot Transonic Wind Tunnel  
(IA613A)**

**by  
J. Marroquin & P. Lemoine  
Rockwell International  
Space Division**

**ABSTRACT**

**An experimental Aerodynamic and Aero-Acoustic loads data base was obtained at transonic Mach numbers for the Space Shuttle Launch Vehicle configured with the ASRM Solid Rocket Boosters as an increment to the current flight configuration (RSRB). These data were obtained during transonic wind tunnel tests (IA 613A) conducted in the Arnold Engineering Development Center 16-Foot transonic propulsion wind tunnel from March 27, 1991 through April 12, 1991. This test is the first of a series of two tests covering the Mach range from 0.6 to 3.5.**

**Steady state surface static and fluctuating pressure distributions over the Orbiter, External Tank and Solid Rocket Boosters of the Shuttle Integrated Vehicle were measured. Total Orbiter forces, Wing forces and Elevon hinge moments were directly measured as well from force balances. Two configurations of Solid Rocket Boosters were tested, the Redesigned Solid Rocket Booster (RSRB) and the Advanced Solid Rocket Motor (ASRM). The effects of the position (i.e. top, bottom, top and bottom) of the Integrated Electronics Assembly (IEA) box, mounted on the SRB attach ring, were obtained on the ASRM configured model. These data were obtained with and without Solid Plume Simulators which, when used, matched as close as possible the flight derived pressures on the Orbiter and External Tank base.**

Data were obtained at Mach numbers ranging from 0.6 to 1.55 at a Unit Reynolds Number of 2.5 million per foot through model angles of attack from -8 to +4 degrees at sideslip angles of 0, +4 and -4 degrees.

## TABLE OF CONTENTS

	<u>PAGE</u>
ABSTRACT	iii
INDEX OF MODEL FIGURES	2
INDEX OF DATA FIGURES	4
INTRODUCTION	8
NOMENCLATURE	10
REMARKS	14
CONFIGURATIONS INVESTIGATED	17
INSTRUMENTATION	22
TEST FACILITY DESCRIPTION	24
TEST PROCEDURE	25
DATA REDUCTION	27
UNCERTAINTY OF MEASUREMENTS	32
REFERENCES	33
TABLES	
I    SUMMARY OF TEST CONDITIONS	34
II   DATASET/RUN NUMBER COLLATION SUMMARY	35
III  PRESSURE TAP/ESP HOOK-UP	47
FIGURES	
MODEL	59
DATA (FORCE VOL. 1)	99
(PRESSURE VOL.2)	
APPENDIX - Tabulated Source Data	
FORCE - Volume I	
PRESSURE - Volume II (Microfiche)	

## INDEX OF MODEL FIGURES

<b><u>FIGURE</u></b>	<b><u>TITLE</u></b>	<b><u>PAGE</u></b>
<b>1.</b>	<b>Model Axis System, Systems and Moment Transfer Dimensions</b>	
a.	Body Axis System and Orbiter Balance Transfer	59
b.	Wing Coordinate System	60
c.	Elevon Coordinate System	60
d.	Wing Balance Transfer	61
<b>2.</b>	<b>Model Configurations</b>	
a.	Launch Vehicle	62
b.	Solid Rocket Booster - ASRM Configuration	63
c.	Solid Plume Simulators	64
<b>3.</b>	<b>Steady State Surface Static Pressure Tap Locations</b>	
a.	Instrumentation - Phi Angle Definition	65
b&c.	Orbiter Fuselage	66
d&e.	Orbiter Fuselage Base and Body Flap Layout	68
f&g.	Wing Pressure Tap Locations	70
h&i.	Vertical Tail	72
j&k.	External Tank Forebody and Base	74
l.	External Tank LO <sub>2</sub> Feedline Instrumentation	76
m&n.	SRB Instrumentation Layout	77
o.	SRB Systems Tunnel	79
<b>4.</b>	<b>Dynamic (Fluctuating) Surface Pressure Locations</b>	
a&b.	Orbiter	80
c.	External Tank	82
d.	Solid Rocket Booster	83
<b>5.</b>	<b>Selected Solid Plume Configuration and Base Pressure Match</b>	<b>84</b>
<b>6.</b>	<b>Model Installation in the AEDC 16T</b>	<b>85</b>

# INDEX OF MODEL FIGURES - (Continued)

<u>FIGURE</u>	<u>TITLE</u>	<u>PAGE</u>
7.	Model Photographs	
a.	Model Installation - 3/4 Top Fwd. View - ASRM Configuration + Solid Plume	86
b.	Model Installation - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume	87
c.	Model Configuration - Side View - RSRB Configuration	88
d.	Model Configuration - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume	89
e.	Model Configuration - Side View - ASRM Configuration	90
f.	Model Configuration - 3/4 L.H. Fwd. View - ASRM Configuration, IEA Top + Solid Plume	91
g.	Model Configuration - 3/4 R.H. Fwd. Closeup View - ASRM Configuration, IEA Top	92
h.	Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Bottom w/o Solid Plume	93
i.	Model Configuration - Closeup View - ASRM Configuration, IEA Bottom w/o Solid Plume	94
j.	Model Configuration - Closeup View - ASRM Configuration, IEA Top + Bottom + Solid Plume S1,2	95
k.	Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Top + Bottom + Solid Plume	96
l.	Model Configuration - 3/4 Fwd. View - Mirror Image ET LO <sub>2</sub> Feedline Configuration, ASRM w IEA Top	97
m.	Model Configuration - Closeup View - 33° Solid Plume - S1,3 Configuration	98

# VOLUME I

## INDEX OF DATA FIGURES - FORCE DATA

	TITLE	SCHEDULE	PAGE
FIG. 1	EFFECT OF ASRM AND PLUMES LONGITUDINAL CHARACTERISTICS	A	1-36
FIG. 2	EFFECT OF ASRM AND PLUMES WING LOADS	B	37-96
FIG. 3	EFFECT OF ASRM AND PLUMES LATERAL-DIRECTIONAL CHARACTERISTICS	C	97-132
FIG. 4	EFFECT OF ASRM AND PLUMES MACH VARIATIONS - ALPHA = 0 DEG.	D	133-140
FIG. 5	EFFECT OF IEA BOX POSITION WING LOADS	B	141-200
FIG. 6	EFFECT OF ELEVON SCHEDULES LONGITUDINAL CHARACTERISTICS	A	201-236
FIG. 7	EFFECT OF ELEVON SCHEDULES WING LOADS	B	237-296
FIG. 8	EFFECT OF ELEVON SCHEDULES LATERAL-DIRECTIONAL CHARACTERISTICS	C	297-332
FIG. 9	EFFECT OF PRESSURE AND FEEDLINE MIRROR CONFIGURATION WING LOADS	B	333-392

SCHEDULE    COEFFICIENTS PLOTTED    SCHEDULE    COEFFICIENTS PLOTTED

A	$C_{N_f}$ VS $\alpha$	D	$C_{N_f}$ VS Mach
	$C_{m_f}$ VS $\alpha$		$C_{m_f}$ VS Mach
	$C_{A_f}$ VS $\alpha$		$C_{A_f}$ VS Mach
B	$C_{h_{eI}}$ VS $\alpha$		$C_{h_{eI}}$ VS Mach
	$C_{h_{eO}}$ VS $\alpha$		$C_{h_{eO}}$ VS Mach
	$C_{N_w}$ VS $\alpha$		$C_{N_w}$ VS Mach
	$C_{B_w}$ VS $\alpha$		$C_{B_w}$ VS Mach
	$C_{T_w}$ VS $\alpha$		$C_{T_w}$ VS Mach

C	$C_Y$ VS $\beta$
	$C_n$ (BODY) VS $\beta$
	$C_l$ (BODY) VS $\beta$

# VOLUME II

## INDEX OF DATA FIGURES - PRESSURE DATA

TITLE		SCHEDULE	PAGE
FIGURE 1	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER FUSELAGE	A	1-24
FIGURE 2	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER BASE	B	25-48
FIGURE 3	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER BODY FLAP - UPPER SURFACE	C	49-72
FIGURE 4	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER BODY FLAP - LOWER SURFACE	C	73-96
FIGURE 5	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER VERTICAL TAIL	D	97-120
FIGURE 6	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER WING - UPPER SURFACE	E	121-144
FIGURE 7	1A613A SELECTED PRESSURE DISTRIBUTIONS ORBITER WING - LOWER SURFACE	E	145-180
FIGURE 8	1A613A SELECTED PRESSURE DISTRIBUTIONS EXTERNAL TANK	F	181-216
FIGURE 9	1A613A SELECTED PRESSURE DISTRIBUTIONS EXTERNAL TANK BASE	G	217-240
FIGURE 10	1A613A SELECTED PRESSURE DISTRIBUTIONS EXTERNAL TANK LO2 FEEDLINE	H	241-252
FIGURE 11	1A613A SELECTED PRESSURE DISTRIBUTIONS LEFT SRB	I	253-276
FIGURE 12	1A613A SELECTED PRESSURE DISTRIBUTIONS LEFT SRB BASE	G	277-288



SCHEDULE COEFFICIENTS PLOTTED

A	$C_p$ VS $x/l_B$
B	$C_p$ VS $Z_0$
C	$C_p$ VS $x/c_{BF}$
D	$C_p$ VS $\epsilon_{TA}$
	$C_p$ VS $xv/cv$
E	$C_p$ VS $xw/ch$
F	$C_p$ VS $x/l_T$
G	$C_p$ VS $\bullet$
H	$C_p$ VS $x_T$
I	$C_p$ VS $x/l_S$

## INTRODUCTION

In 1990, the Space Shuttle Vehicle program began the design effort for an Advanced Solid Rocket Motor (ASRM) which would provide the system with improved ascent performance, resulting in enhanced launch capabilities as well as the ability to carry heavier payloads to orbit.

The design concept increased the Booster diameter by four inches between the nose cone and the skirt as well as modifying the aft support ring, IEA box and booster stiffeners. High fidelity Aerodynamic and Aero-Acoustic loads data were required on the vehicle configured with this preliminary outer mold line design to determine the effects on the ascent orbiter wing loads and to update the IVBC-3 loads data base. This IVBC-3 data base was generated using previous wind tunnel test data from this model and upgraded to the Redesigned Solid Rocket Motor (RSRM) configuration using Flight derived data.

To obtain these data, the large 0.03 scale integrated vehicle pressure loads wind tunnel model 47-OTS was modified such that both the latest RSRM Booster configuration, representing that of the current configuration data base, and the new ASRM configurations could be tested with minimum change time in the wind tunnel.

This test IA613A, the first of a two test series was conducted in the Arnold Engineering Development Center 16 Foot Transonic Propulsion Wind Tunnel. The test was conducted at transonic Mach numbers during the time period of March 27, 1991 to April 12, 1991. The model tested was a 0.03 scale replica of the Space Shuttle Launch Vehicle, designated 47-OTS, as shown in Figure 2a.

This test measured 1392 surface static pressures and 68 Aero-acoustic surface pressures to provide distributions over the orbiter, external tank and solid rocket

boosters on both the ASRM and RSRB configured SSV launch vehicle. The force and moment data directly measured were; six component orbiter force and moment, three component orbiter right hand wing force and moment, and right hand wing elevon hinge moments. These data were obtained at Mach numbers from 0.6 to 1.55 at a unit Reynolds number of 2.5 million per foot at angles of attack ranging from -8 to +4 degrees and at sideslip angles of 0, +4 and -4 degrees. All primary objectives of the test were completed.

This report presents a description of this first (Transonic Mach Range Test) of a series of two tests. This report consists of remarks on the conduct of the test, description of the model and test facility, details on the test procedure, information on data reduction as well as presentation of recorded test data.

The data obtained from this test is contained on the final data tapes from AEDC. These tapes are available at Rockwell International Space Systems Division as well as NASA/JSC. The AEDC Data Tape at Rockwell is under the control of the Aerodynamics group, specifically L.P. LeBlanc, (310) 922-5369. Additional raw Kulite data, recorded on MUX recorders are in the possession of the Structural Dynamics group at Rockwell SSD. For information on these data, contact Phil Schuetz (310) 922-3552.

Data presented in this report have been included in the Chrysler DATAMAN Space Shuttle wind tunnel test database.

# NOMENCLATURE

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
$A_i$		AREA OVER WHICH $P_i$ ACTS, SQ.FT.
$\alpha$	ALPHA	MODEL PITCH ANGLE, DEGREES
	ALPHAO	ORBITER ANGLE OF ATTACK, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
	BREF	SPAN OF VEHICLE, INCHES
$\beta$	BETA	MODEL ANGLE OF SIDESLIP, DEGREES
	BETAO	ORBITER ANGLE OF SIDESLIP, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
$b_w$		WING BENDING REFERENCE LENGTH
$C_A$	CA	ORBITER AXIAL FORCE COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
$C_{AB}$	CAB	ORBITER BASE AXIAL FORCE COEFFICIENT
$C_{Af}$	CAF	ORBITER AXIAL FORCE COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
$C_{Bw}$	CBW	ORBITER WING BENDING MOMENT COEFFICIENT
$C_e$		ELEVON REFERENCE CHORD LENGTH
$C_{hei}$	CHEI	RIGHT INBOARD ELEVON HINGE MOMENT COEFFICIENT
$C_{heo}$	CHEO	RIGHT OUTBOARD ELEVON HINGE MOMENT COEFFICIENT
$C_l$	CBL	ORBITER ROLLING MOMENT COEFFICIENT (BODY AXIS)
$C_m$	CLM	ORBITER PITCHING MOMENT, COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
$C_{m_B}$	CLMB	ORBITER BASE PITCHING MOMENT COEFFICIENT
$C_{m_f}$	CLMF	ORBITER PITCHING MOMENT COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
$C_N$	CN	ORBITER NORMAL FORCE COEFFICIENT, UNCORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)

# NOMENCLATURE - (Continued)

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
$C_{NB}$	CNB	ORBITER BASE NORMAL FORCE COEFFICIENT, $C_{NBO} + C_{NBF}$
$C_{NBO}$	CNBO	NORMAL FORCE BASE PRESSURE COEFFICIENT, CORRECTION FOR THE ORBITER FUSELAGE BASE
$C_{NBF}$	CNBF	NORMAL FORCE BASE PRESSURE COEFFICIENT, CORRECTION FOR THE ORBITER BODY FLAP
$C_{Nf}$	CNF	ORBITER NORMAL FORCE COEFFICIENT, CORRECTED FOR BASE PRESSURE EFFECTS (BODY AXIS)
	CNW	ORBITER WING NORMAL FORCE COEFFICIENT
$C_n$	CYN	ORBITER YAWING MOMENT COEFFICIENT (BODY AXIS)
$C_{pi}$	CP 0101 -	32x48 STRING OF SURFACE STATIC PRESSURE COEFFICIENTS
	CP 3248	SORTED BY MODULE, PORT = $(P_i - P_o)/q$
$C_{prmsi}$	CP RMSI	PRESSURE COEFFICIENT MEASURED BY DYNAMIC PRESSURE TRANSDUCERS, $i = 1$ TO 68 = $(P_{rmsi} - P_o)/q$
$C_{pao}$	CPAO	AVERAGE ORBITER BASE PRESSURE COEFFICIENT = $\frac{1}{14} \sum_{i=311}^{i=324} C_{pi}$
$C_{pas}$	CPAS	AVERAGE SOLID ROCKET BOOSTER BASE PRESSURE COEFFICIENT = $\frac{1}{10} \sum_{i=2201}^{i=2210} C_{pi}$
$C_{pat}$	CPAT	AVERAGE EXTERNAL TANK BASE PRESSURE COEFFICIENT = $\frac{1}{75} \sum_{i=1501}^{i=1575} C_{pi}$
$C_{Tw}$	CTW	ORBITER WING TORSION MOMENT COEFFICIENT
$C_w$		MEAN AERODYNAMIC CHORD
$C_y$	CY	ORBITER SIDE FORCE COEFFICIENT (BODY AXIS)
$D_{b,rmsi}$	DB RMSI	DECIBEL LEVEL CORRESPONDING TO PRESSURE MEASURED BY DYNAMIC PRESSURE TRANSDUCERS, $i = 1$ TO 68
$\eta$	ETA	SPANWISE LOCATION ON SURFACE, FRACTION OF SPAN
$\delta e_i$	IB-ELV	DEFLECTION ANGLE OF INBOARD ELEVONS, DEGREES

# NOMENCLATURE - (Continued)

<u>SYMBOL</u>	<u>MNEMONIC</u>	<u>DEFINITION</u>
$\delta e_o$	OB-ELV	DEFLECTION ANGLE OF OUTBOARD ELEVONS, DEGREES
$\delta e_{LI}$	LI-ELV	DEFLECTION ANGLE OF LEFT INBOARD ELEVON, DEGREES
$\delta e_{LO}$	LO-ELV	DEFLECTION ANGLE OF LEFT OUTBOARD ELEVON, DEGREES
$\delta e_{RI}$	RI-ELV	DEFLECTION ANGLE OF RIGHT INBOARD ELEVON, DEGREES
$\delta e_{RO}$	RO-ELV	DEFLECTION ANGLE OF RIGHT OUTBOARD ELEVON, DEGREES
$LO_2$	LO2	LIQUID OXYGEN
	LREF	REFERENCE LENGTH OF VEHICLE, INCHES
M	MACH	FREESTREAM MACH NUMBER
$P_o$	P	FREESTREAM STATIC PRESSURE, PSFA
$\phi$	PHI	EXTERNAL TANK ROLL ANGLE, DEG.
	PHIO	ORBITER ROLL ANGLE, DEG. RELATIVE TO ET & SRB - CORRECTED FOR BALANCE DEFLECTION
$P_t$	PT	FREESTREAM TOTAL PRESSURE, PSFA
q	Q(PSF)	FREESTREAM DYNAMIC PRESSURE, PSFA
	RN/L	FREESTREAM UNIT REYNOLDS NUMBER/MILLION
	SREF	REFERENCE AREA, IN. <sup>2</sup>
	XMRP	LOCATION OF MODEL REFERENCE POINT ALONG X-AXIS, INCHES
$X_o$	XO	LONGITUDINAL STATION ON ORBITER
$X_s$	XS	LONGITUDINAL STATION ON SRB
$X_T$	XT	LONGITUDINAL STATION ON THE EXTERNAL TANK
$X/l_B$	X/LB	LONGITUDINAL LOCATION ON ORBITER BODY SURFACE, FRACTION OF BODY LENGTH
$X/l_s$	X/LS	LONGITUDINAL LOCATION ON SOLID ROCKET BOOSTER SURFACE, FRACTION OF BODY LENGTH
$X/l_T$	X/LT	LONGITUDINAL LOCATION ON EXTERNAL TANK BODY SURFACE, FRACTION OF BODY LENGTH
$X_V/C_V$	XV/CV	CHORDWISE LOCATION ON VERTICAL TAIL, FRACTION OF LOCAL CHORD

# NOMENCLATURE - (Concluded)

## SYMBOL

## MNEMONIC

## DEFINITION

$X_W/C_W$

XW/CW

CHORDWISE LOCATION ON WING SURFACE, FRACTION OF LOCAL CHORD

$X/C_{BF}$

X/CBF

CHORDWISE LOCATION ON BODY FLAP, FRACTION OF LOCAL CHORD

YMRP

LOCATION OF MODEL REFERENCE POINT ALONG Y-AXIS, INCHES

$Y_o$

YO

ORBITER LATERAL STATION

ZMRP

LOCATION OF MODEL REFERENCE POINT ALONG Z-AXIS, INCHES

$Z_o$

ZO

ORBITER WATER LINE

## REMARKS

After completion of the model rework at Krug International, Dayton, Ohio, the model was shipped directly to AEDC. A number of model and orbiter balance fouling problems were discovered and corrected during orbiter balance check loads.

Fouling of the Orbiter balance inside the Orbiter cavity was corrected by fabricating a new balance pin. This balance pin used the top forward balance pin hole and placed the longitudinal center of the balance at Orbiter model station (MS) 32.7202. This places the Orbiter aft relative to the External Tank 0.009 inches from the original centerline position of (MS) 32.63. In addition, the new pin also positioned the Orbiter at a negative roll (right wing up) relative to the ET/SRB assembly of between 0.15 and 0.20 degrees.

During the model calibration loadings which required inverting the model, the Orbiter SSME solid plume grounded on the Orbiter SSME's. This plume assembly was moved aft on the sting 0.40 inches resulting in a 0.525 gap at the static model upright position.

Due to an additional requirement to duplicate the scaled blockage (cross-sectional area) of the aft External Tank to Orbiter attach region, a fairing was added to the lower part of the crossbeam to simulate the GH2 line cover fairing. This on-site modification measured 0.170 inches high from the lower moldline to the top of the External Tank. The scaled vehicle dimension is 0.1626 inches.

During the beginning of the test for run numbers less than 580, the Orbiter umbilical doors were left off. These were mounted prior to run number 580, however, there was no clearance between these doors and the Orbiter non metric support umbilicals resulting in a ground from model to balance system. This problem was rectified prior to run #600. Therefore, with the exception of the Orbiter balance forces, the remaining data from run #580 to #600 are valid. Run #602 is the first run with the Orbiter configured with umbilical doors to provide valid Orbiter force data.



Aero-Acoustic (Kulite) data was obtained throughout the test up to and including run #1565. No Kulite data was planned for the configurations tested in the run numbers from #1586 through the end of the test, run #1745.

Anomalies in the model setup that were not corrected prior to or during the test are; 1) The pressure taps on the ET LOX feedline were numbered 120 degrees rotation from the published orientation in reference 1. Figure 32 provides the as hooked up pressure locations. On line printout data obtained during the test lists the pressure coefficients for the pretest report location. However, the final data tape referred to in this report lists the pressure data by ESP number - Port number so the figure presented herein should be used. 2) The External Tank spike nose part was mounted on the model inverted (i.e. at 180 degrees rotation from that shown in reference 1). The tap location as tested is as follows;

P# 1002 & # 1010	is @ $\Phi$ = 180 deg.	was @ $\Phi$ = 0 deg.
P# 1003 & # 1011	is @ $\Phi$ = 240 deg.	was @ $\Phi$ = 60 deg.
P# 1004 & # 1012	is @ $\Phi$ = 270 deg.	was @ $\Phi$ = 90 deg.
P# 1005 & # 1013	is @ $\Phi$ = 315 deg.	was @ $\Phi$ = 135 deg.
P# 1006 & # 1014	is @ $\Phi$ = 0 deg.	was @ $\Phi$ = 180 deg.
P# 1007 & # 1015	is @ $\Phi$ = 45 deg.	was @ $\Phi$ = 225 deg.
P# 1008 & # 1016	is @ $\Phi$ = 90 deg.	was @ $\Phi$ = 270 deg.
P# 1009 & # 1017	is @ $\Phi$ = 120 deg.	was @ $\Phi$ = 300 deg.

Various anomalies occurred during the test yielding pressure data (steady state and dynamic) either no good or questionable. Plugged, leaking and non existent pressure taps were determined prior to as well as during the test. Most data are bad coded in the data output. However some slow leaking pressures were left in the data. These marginal pressures are marked (?) and caution should be used in their use. Table III lists the pressure tap numbers versus ESP No. and port location. This table presents notes which indicate these pressure data problems for specific runs and runs greater than a given run.

It should be noted here that for runs #498 through #517, a problem existed with the data collection of the ESP's measuring the SRB pressures. The data from the odd numbered ports of these ESP's are questionable.

Pressure #416 checked as open during the pretest checks. Because this upper body flap pressure was involved in calculating the orbiter base force correction, pressure tap #424 was substituted in its place. In doing this, the pressure from tap 424 is output in both the location for P416 and P424.

Three Kulite transducers were bad throughout the test. These are;

Kulite # 8

Kulite #31

Kulite #66

Some errors exist in the data tape, primarily in the Elevon deflection setting and corrections to these settings for load deflections. The following lists these errors;

- 1) Left Hand Elevon Run #'s 503 to 516 - The elevons were set at  $10^\circ$  outb'd and  $+5^\circ$  inb'd but indicated in the data as  $10^\circ$  outb'd and  $-5^\circ$  inb'd. Run #'s 1559 to 1565 - The elevons were set at  $10^\circ$  outb'd and  $-5^\circ$  inb'd but indicated in the data as  $8^\circ$  outb'd and  $9^\circ$  inb'd.
- 2) Right Hand Elevon Run #'s 410 to 516 - The elevons were set at  $10^\circ$  outb'd and  $+5^\circ$  inb'd but indicated in the data as  $9^\circ$  outb'd and  $5^\circ$  inb'd. Run #'s 1584 to 1611 - The elevons were set at  $8^\circ$  outb'd and  $9^\circ$  inb'd but input in the data as  $-8^\circ$  outb'd and  $-9^\circ$  inb'd.

These errors in deflection setting inputs were corrected in the corrected elevon deflection data, therefore no deflection under load was accounted for in these cases.

## CONFIGURATIONS INVESTIGATED

The model provided for the AEDC test period was a 0.030 scale replica of the Rockwell International Space Shuttle Vehicle in the launch configuration. The launch configuration consists of the assembly of a payload carrying Orbiter, an expendable external oxygen/hydrogen tank (ET) which provides fuel for the Orbiter main engines (SSME) and two recoverable Solid Rocket Boosters (SRB's). The launch configuration is shown in Figure 2a. The entire model is the launch vehicle configuration, comprised of the 102 Orbiter, the Light Weight External Tank and the RSRB or ASRB Boosters.

### ORBITER

The Orbiter is a blended wing/body design with a double delta planform ( $81^{\circ}/45^{\circ}$  leading edge), twelve percent thick airfoil wing with full span elevons incorporating a six-inch interpanel gap between the independently deflectable inboard and outboard panels. A single swept ( $45^{\circ}$ ) centerline vertical tail with rudder and/or speed brake capability. The aft fuselage incorporates two Orbital maneuvering system (OMS) pods. These two OMS pods are fabricated with the OMS nozzles and RCS thrusters simulated. A single body flap (to aid in trim control while the speed brake is flared during re-entry) is fitted on the lower trailing edge of the fuselage.

The Orbiter fuselage is in accord with Rockwell International control drawing VL70-000140A, with the vertical tail as defined by drawing VL70-000146A. The OMS pods are the VL70-000140C configuration, this being a combination of the VL70-08401 and VL70-08410 drawings. Fitted to this is the Orbiter vehicle 102 wing as defined in the MD-V70 data book(s). For the purposes of this test and report, the resulting outer mold line (OML) is referred to as the "OV102 Orbiter". The complete Orbiter weighs approximately 140 pounds.

The wing is two piece with LH and RH panels mounted to a central steel wing beam. This beam of cross shaped planform supports one wing on a tang on each side of the central plate. The right hand tang is instrumented with strain gauges to form the three component wing load indicator balance. The exposed wings are made integral with the glove and a labyrinth seal is provided on the metric side to improve the data quality. The left hand wing is instrumented with pressure taps.

Each of the wings is fitted with deflectable inboard and outboard elevons which are supported in torsion only by a beam mounted on the hinge line. Identical R.H. and L.H. elevon supports insure similar aeroelastic deflections under load. The right hand elevon panels are supported on beams which are strain gauged. The following table shows the elevon deflections used during this test. The nominal deflection angles are listed as the requested angles, the unloaded measured deflection angles listed as the average of the measurements  $\pm$  the tolerance band. These angles are the unloaded deflection angles.

<u>ELEVON DEFLECTIONS</u>		
NOMINAL	MEASURED	
INBOARD	R.H. INBOARD	L.H. INBOARD
10°	9.750 $\pm$ 0.100	10.145 $\pm$ 0.155
8°	8.200	8.220
OUTBOARD	R.H. OUTBOARD	L.H. OUTBOARD
9°	7.675 $\pm$ 0.195	8.750 $\pm$ 0.060
5°	3.750 $\pm$ 0.780	4.815 $\pm$ 0.165
-5°	-6.195 $\pm$ 0.125	-4.390 $\pm$ 0.110

Interchangeable simulated flipper doors are fitted to the upper wing surface for the various elevon deflections.

The body flap, with hinge moment capability and forty pressure taps is provided. The body flap deflectable to four deflections, -11.7°, 0°, +16.3° or +22.5°. The body flap was set at 0° deflection for this test.

The vertical tail provided for this test includes a single panel hinged rudder/speed brake on each side. These panels are individually pinned to the hinge shaft, the shaft is then pinned to the vertical to provide any combination of rudder/speed brake deflections. The 0° rudder/speed brake (No deflection) was used for this test.

The SSME nozzles are simulated in the base of the Orbiter. The nozzles are set at the nominal angles of 16° up, no yaw upper, and 10° up, +3-1/2° yaw outboard for the lower two.

The entire Orbiter is mounted on the AEDC MK XXXIC Task balance. The balance taper fits into a block in the cavity at the rear of the fuselage. This block is attached to a beam running under the balance block and to a stiffener rod that runs forward above the right upper corner of the balance block to a "flying wedge" piece attached to the front of the longitudinal beam. This forms a support system within the Orbiter with the taper for the balance in the rear block. The ET attach hardware (simulated  $\text{LO}_2$  and  $\text{LH}_2$  feedlines) were upgraded to the latest dimensions which allowed for the increase in instrumentation leads in the Orbiter. These feedlines mount to the lower aft part of the beam through holes in the bottom of the Orbiter. The forward end of the balance support is mounted to the forward ET/ORB bipod in the lower fuselage cavity.

### EXTERNAL TANK (ET)

The ET has been modified to the "lightweight" configuration for this test. It has a cylindrical cross section with a nominal diameter of 333.0" full scale and a maximum diameter of 336.2" full scale. The forward portion of the ET has a tangent ogive nose which terminates in a triconic nose cap over the  $\text{LO}_2$  vent valve. The triconic nose functions as the Ascent Air Data System (AADS). The aft end of the tank is basically an ellipsoid of revolution. Between the  $\text{LO}_2$  and  $\text{LH}_2$  vessels one third of the ET length behind the nose is a structure of stiffeners which is slightly larger than the nominal tank diameter. Covering the entire tank is a Spray-On Foam Insulation (SOFI) of varying thickness, as dictated by the relative heat load, i.e., approximately 2.5 inches thick on the tangent ogive, 1.0 inches thick on the cylindrical portion of the tank and 2.0 inches thick on the rear ellipsoid. The diameters given above include this SOFI. A plate is provided in the forward section to support 13 ESP units and the Schaevitz angle of attack transmitter. The approximate weight of the External Tank with instrumentation is 190 pounds.

Protruding above the insulation are a number of external protuberances which fall into three major categories; electrical trays, fluid lines and attach hardware. The fluid lines modeled are the  $\text{LO}_2$  and  $\text{LH}_2$  feed and vent plumbing. The attach hardware, considered as part of the tank, is the front and rear ET/Orbiter attach structure, which is discarded with the ET at the end of the main engine burn (ET separation). The external tank for this test is built to the geometry described in the Rockwell International Interface Control Drawing ICD 2-00001C.

The Orbiter/ET attach hardware is scaled to as great a degree possible and is load-bearing. The Orbiter/ET front attach is fabricated from a single piece with two integral end plates. The aft attach structure is the scaled OML between the ET and Orbiter. A fairing on the ET side of

the main cross member was added for this test series. It represents the hydrogen tank pressurization line and maintains the scaled height (gap) above the ET. This gap between the ET top and the lower extremity of pressure line and fairing measured 0.0074 inches, model scale, larger than the vehicle.

The pressure and feed lines, previously used during test IA190, are modified to simulate the "light weight" tank. A removable mirror image pressure and feedline assembly was tested. This mirror image configuration provided pressure data on the RH wing including the interference caused by this large line system.

### **SOLID ROCKET BOOSTERS (SRB's)**

Two configurations of the Solid Rocket Boosters were tested. The current configuration (the Redesigned Solid Rocket Boosters (RSRB's)), are 146-inch nominal diameter cylinders, each with an 18° semi-angle nose and a 13.27° spherical tip. An 18° flared skirt, 208.20" diameter, protects the gimballed rocket nozzle. The vehicle flexible donut shaped seal and thermal shield is provided between skirt and nozzle. Major protrusions from the basic envelope include a forward attach lug, separation thrusters front and rear, aft attach ring, various stiffeners, field joints and a full length electrical systems tunnel. This RSRB outer mold line configuration geometry is described in the Rockwell International Interface Control Drawing ICD 2-00001 Rev. H.

The second configuration, the Advanced Solid Rocket Motor (ASRM), is built to the IRN 190 Drawings, January 3, 1991. The booster diameter was enlarged to 150.25 inches between stations 523.83 and 1837.24 and appropriate changes were made to the stiffener rings, field joints (systems tunnel) aft attach ring with the Integrated Electronics Assembly (IEA) box. The ASRM configuration is shown in Figure 2b. The cylindrical inner aft attach struts as well as a section of the attach ring inside between these struts were not updated.

The two (LH & RH) baseline SRB's built around a 2.00" ID x 3.38" OD sleeve cores. Modified outer shells provide the RSRB and ASRM configurations for this test. The SRB to ET attachments bear the expected loads and carry the electrical leads through from the tank. The weight of the right hand SRB is approximately forty pounds and the weight of the thinner, left hand SRB with the pressure instruments installed, is approximately twenty-one pounds. The SRB itself consists of four main parts, nose cone, forebody, aft attach ring and aft SRB body with the skirt and nozzle assembly.

Nozzle actuator struts are simulated on each of the SRB aft skirts. The SRB aft separation thrusters are attached to the skirt. The forward attach structure is simulated utilizing a 7/16 inch diameter bolt which secures the SRB to the ET. Just aft of this bolt, the body of both the SRB and the ET have been relieved to provide a passage for instrumentation leads. The RSRM aft attach ring (ETA) configuration has been updated for this test and is interchangeable with the ASRM ETA. This ring is carved of a single piece of stock with integral different size mounting studs that simulate the aft attach struts. The struts and ETA wing configuration between these struts (inside) was not upgraded.

Removable IEA boxes were provided for both the ASRM and RSRB configurations so that they could be mounted either on top or bottom or both on top and bottom. The current launch configuration uses the top-mounted IEA box, but the bottom-mounted IEA box was proposed and used to alleviate aerodynamic disturbances between the boosters and the orbiter. During this test, the RSRB's were configured only with the top mounted RSRB IEA box configuration. The ASRM configuration was tested with the IEA box position on Top, Bottom, and Top and Bottom.

## **SOLID PLUME SIMULATORS**

Plume simulators were provided for both the Orbiter and the SRB's in order to approximate as close as possible, the flight base pressures. The Orbiter plume simulator is a single contoured mahogany wood block, supported from the model stings and metrically isolated from the Orbiter base. The SRB plume simulators are conical wood with a disk of larger diameter at the aft cone surface. Two different sizes were provided. One, the small simulator, is a 28° half angle cone terminating at 8.12 inch diameter with a 1/2 inch thick, 9.37 inch diameter disc. The second is a 33 degree half angle cone terminating at 9.37 inch diameter with an 1/2 inch thick 11.25 inch diameter disc. These were mounted on the forked sting and adapter assemblies in proximity of the SRB nozzles. Longitudinal positioning of these SRB simulators was provided at 7.5, 13.5 and 18.75 inches, distance downstream of the SRB exit plane to the forward face of the disc (aft end of the cone). These plume simulators were designed using the configuration of those tested on an 0.10 scale SSV model (test IA-300), Reference 4, which is based on a solid plume simulator study by NASA/MSFC reported in Reference 5. The plume simulators are shown in Figures 2c.

## INSTRUMENTATION

The model was instrumented so that steady state and fluctuating pressure as well as force data could be obtained simultaneously. In general the RH side of the model contained the force gauges of the model (i.e., RH wing and RH elevons). The LH side of the model was heavily instrumented with surface static pressures. The kulites pressure transducer were mounted to the RH side of the Orbiter External Tank and SRB.

A total of 1392 steady state surface static pressures were measured by thirty-two 48-port ESP's. The first and thirty-second port were used to measure a known pressure furnished from outside the model leaving forty six ports for model pressures. The location of the 1392 pressures are shown in Figures 3 and are categorized as follows:

<u>Major Model Component</u>	<u>Model Component</u>	<u>No. of Orifices</u>
Orbiter Total 628 pressures	Fuselage	196
	Body flap	40
	Base	24
	Vertical Stabilizer	75
	Wing	293
External Tank Total 557 pressures	Body	423
	Base	74
	LO <sub>2</sub> Protuberances	60
Solid Rocket Boosters 207 pressures	SRB Basic Body	177
	Base	10
	Protuberances	20

The model was instrumented to measure 68 Aero Acoustic pressures. Sixty eight (68) Kulite high frequency response  $\pm 15$  psid pressure transducers are installed in the model to measure these vibra-acoustic pressure levels. Figure 4 shows the location of these kulites on the Integrated Vehicle and are categorized as follows;

<u>Major Model Component</u>	<u>Model Component</u>	<u>No. of Orifices</u>
Orbiter Total 15 Kulites	Fuselage	5
	Wing	10
External Tank Total 26 Kulites	Body	24
	Base	2
Solid Rocket Total 27 Kulites	Basic Body	27



Model forces and moments were measured by strain gauge balances as follows:

<u>Balance Location</u>	<u>Type</u>	<u>Model Forces &amp; Moments Measured or Calculated</u>
Orbiter	6- component *AEDC/Task 2.5" MK XXX1 C	Orbiter normal force, side force, axial force, pitching moment, rolling moment and yawing moment
RH Wing	3-component	Wing normal force, bending moment and torsional moment
RH Inboard Elevon	1-component Strain gauge beam	Inboard elevon hinge moment
RH Outboard Elevon	1-component Strain gauge beam	Outboard elevon hinge moment
Dual Stings	4-component (each) Strain gauge	2" AEDC sting (used to calculate sting deflections determination only) rated loads unknown

\*The backup balance was the AEDC/Task 2.5" MK XXII B

An AEDC supplied Schaevitz angular position indicator was mounted in the external tank. The output from this instrument was used to check angle of attack at zero roll angle only (i.e.  $\phi = 0^\circ$ ).

The output of the kulite dynamic pressure transducers were sent to the AEDC RMS (root-mean-square) meters and four (4) MUX magnetic tape recorders. IRIG time was provided to all Data Systems so that the Steady State and Dynamic Data could be correlated. Voice identification of each data point, run and point number, was also recorded on the MUX tape.

## TEST FACILITY DESCRIPTION

The AEDC PWT 16-Ft. Transonic Tunnel (Propulsion Wind Tunnel, Transonic 16T) is a continuous-flow closed-circuit tunnel capable of operation within a Mach number range of 0.06 to 1.60. The tunnel can be operated within a stagnation pressure range of 120 to 4000 psfa depending upon the Mach number. The stagnation temperature can be varied from an average minimum of about 80° to a maximum of 160° F as a function of cooling water temperature. Using a special cooling system of mineral spirits, liquid nitrogen, and liquid air, the stagnation temperature range can be varied from +30° to -30° F. Supersonic velocities are obtained by use of flexible-wall, Laval type nozzles.

The test section used during the test was the High Angle Automated Sting (HAAS) cart with a test section that is 16 ft square by 40 ft long and enclosed by 60 deg inclined-hole perforated walls of six-percent porosity. The HAAS test section has a side wall angle variance capability from -2.0° (convergence) to 0.8 deg (divergence). To compensate for the HAAS strut blockage, the HAAS cart side walls have a bulge section, which has a depth of 6.0 in. The entire test section and supporting structure is constructed as a separate unit, called the test section cart, and is removable from the tunnel circuit. The test section carts may be moved to the model installation building where the test article and associated equipment are installed. The test section is completely enclosed in a plenum chamber which can be evacuated, allowing part of the tunnel main flow to be removed through the test section perforated walls, thereby unchoking the test section at near sonic speeds and alleviating wall interference effects.

The 16T HAAS sting support system was used to support and position the 0.03-scale model in the test section during the test entry. The model was supported by a dual sting arrangement consisting of two, 2.0-in. dia. stings exiting from the bases of the left and right hand solid rocket boosters (SRB). These stings were then attached by adapters to 4.16-in. dia. parallel stings which were mounted in the modified lockheed support system. This support arrangement allowed the base of the orbiter to be essentially free from any support system interference.

The sting support system utilizes computer control to position the model at angles of attack and sideslip by means of combinations of pitch and roll angles. This model support system is advantageous in that the model can be maintained at, or close to, the tunnel centerline where flow angularity is a minimum. A sketch showing the location of the 0.03-scale model in the test section is presented in Figure 6 and a photograph showing this installation is presented in Figure 7a.

## TEST PROCEDURE

The model was mounted upright in the tunnel on a steel forked sting assembly (figure 6). This sting, supplied by AEDC, was constructed by Lockheed and modified by Rockwell to a nominal length of 130.96 inches. The model was mounted to the sting assembly through the base of the SRB's by two steel eccentric adapters. This forked sting assembly is set at a nominal spacing of 16 inches. This installation places the center of rotation at the base of the SRB nozzles. The model therefore transfers away from the tunnel centerline when pitched to any angle other than  $\alpha = 0^\circ$ ,  $\beta = 0$ .

The general test procedure was as follows: After starting the tunnel, the desired test conditions for a particular Mach number were established as given in Table I, the test conditions were held constant while model angle of attack and sideslip were varied in a pitch pause manner. To record dynamic pressure (Kulite) data, the model attitude was held constant for a specified period of time. At the start of the test 10 to 20 seconds in addition to the force and static pressure data time was used. After run #719 this additional pause time to record the dynamic Kulite data was reduced to 6 seconds

Two Mach sweeps runs were conducted where Mach number was varied continuously from 0.6 to 1.55 while the model attitude was held constant at -4 deg angle of attack and zero sideslip angle. During the Mach sweeps the dynamic data was recorded continuously.

Flow angularity (Aerodynamic tares) were determined early in the test program. Special runs were conducted through the pitch range at  $0^\circ$  sideslip angle with both the model in the upright ( $\phi = 0^\circ$ ) and inverted ( $\phi = 180^\circ$ ) position. These were accomplished at all Mach numbers except  $M = 1.55$ . The tare angle was determined as the angle required to collapse the CN versus alpha curves for these runs.

Test runs were specifically conducted to determine the solid plume configuration which will yield average orbiter and external tank base pressures as close to flight values as possible. The results of these runs selected the  $28^\circ$  cone SRB plume set at an axial distance of 13.25 inches behind the SRB nozzle exit was the nominal configuration for tests from  $M = 0.6$  through 1.25. The larger  $33^\circ$  cone plume at the same axial position was nominal for tests from  $M = 1.25$  to 1.55. Figure 5 presents data which show the degree of base pressure match achieved.

The model attitude (Alpha & Beta) were set in the tunnel with the pitch and roll mechanism of the HAAS cart pitch and sting roll assembly. The model was pointed to the corrected Alpha-Beta angle requested on the run schedule, within setting accuracies. This model pointing angle was achieved through computer control of the pitch and roll mechanism. Real time sting deflections and flows angularity tares, were calculated and applied to the pitch and roll mechanism outputs in an iterative closed feedback loop to automatically adjust and point the model to the corrected attitude.

The pressure transducers were calibrated prior to the test and were again calibrated after the model was installed in the tunnel using the "reference" and "calibrate" ports on the ESP's in accordance with normal AEDC/PWT procedures.

After installation all pressures were either leak checked using a hand held vacuum pump or continuity checked with compressed air when the orifice was located in a position where it could not be leak checked. This checking continued throughout the test whenever there was any evidence of a problem and after model changes to check all pressures which had been disconnected during the change.

The 2.5" MK XXX1C Orbiter balance, the wing balance, and the elevon hinge moment beams were calibrated in the AEDC calibration laboratory prior to the test. The elevon hinge moment gauge calibration were checked after each change in elevon angle. All balances were check-loaded after the model was installed in the tunnel. After installation in the model, the Schaevitz angle position indicator was calibrated over the angle-of-attack range required for the test.

The strain gauge instrumented dual sting was calibrated, installed in the cart prior to installation into the tunnel. The model-sting assembly was loaded installed in the tunnel to provide checks to that calibration.

The test run number summary defining model configuration, model attitudes, and elevon deflections is presented in Table II.

## DATA REDUCTION

Standard AEDC methods for computing tunnel parameters, balance forces and moments, and model attitudes were used. Force and moment coefficients (body axis system only) were computed for each balance using the axis system defined in Figure 1a. Orbiter force and moment data were adjusted to account for the difference between measured base pressure and freestream pressure. Elevon hinge moments, and wing forces and moments were calculated in coefficient form about reference locations specified for each component.

The model angle of attack and sideslip angle were corrected for sting deflections caused by model weight and aerodynamic loading. The attitude of the integrated vehicle was calculated from the sector reading, the output of the strain gauges on the forked sting, accounting for sting deflection, and the determined flow angularity tare. The attitude of the orbiter was corrected for the orbiter balance deflections. The deflection of the right hand elevons due to the applied hinge moment were also calculated and accounted for. The deflection of the wing under load was found to be insignificant and therefore was not accounted for in the data reduction.

Standard six component body axis force coefficients were computed for the balance mounted orbiter. The reference area used was the orbiter wing area, and the reference length for moment coefficients was the orbiter reference length. Forces and moments were resolved about the integrated vehicle reference center which is at the orbiter nose on the tank centerline. These Orbiter forces and moments were corrected for model weight tares. The orbiter normal force, axial force, and pitching moment were corrected for base pressure effects as determined from pressures measured on the orbiter base and body flap to yield "Orbiter forebody forces". These base pressure corrections were calculated as follows:

$$C_{NB} = - \frac{1}{S_w} \left[ \tan 14.75^\circ \sum_{i=301}^{324} C_{pi} A_i + \sum_{i=401}^{440} C_{pi} A_i \right]$$

$$C_{AB} = - \frac{1}{S_w} \sum_{i=301}^{324} C_{pi} A_i$$

$$C_{mB} = - \frac{1}{S_w l_b} \left[ -X_1 \tan 14.75^\circ \sum_{i=301}^{324} C_{pi} A_i - X_2 \sum_{i=401}^{440} C_{pi} A_i + Z_1 \sum_{i=301}^{324} C_{pi} A_i \right]$$

where  $X_1$ ,  $X_2$  and  $Z_1$  are the distances to the centroid of the area from the moment reference center given in the reference dimension table.

The resulting coefficients are applied as follows to obtain the Orbiter forebody coefficients:

$$C_{A_f} = C_{A_u} - C_{A_B}$$

$$C_{N_f} = C_{N_u} - C_{N_B}$$

$$C_{m_f} = C_{m_u} - C_{m_B}$$

Model component loads were reduced to force and moment coefficients as follows:

#### Wing Force Coefficients:

Shear (Normal Force)  $C_{N_w} = N_w / [(q) (S_w)]$  where:  $N_w = \frac{m_1 - m_2}{a_m}$

Bending Moment  $C_{B_w} = B_w / [(q) (S_w) (b_w)]$  where:  $B_w = m_2 + \frac{(m_1 - m_2)d_m}{a_m}$

Torsion Moment  $C_{T_w} = T_w / [(q) (S_w) (C_w)]$  where:  $T_w = m_3 + \frac{(m_1 - m_2)e_m}{a_m}$

where:  $m_1$  - wing inboard bending moment ~ in-lbs

$m_2$  - wing outboard bending moment ~ in-lbs

$m_3$  - wing torsion ~ in-lbs

$a_m$ ,  $d_m$  &  $e_m$  - moment transfer distances ~ in. (see figure 1d)

#### Elevon Hinge Moment Coefficients:

$$C_{he_i} = H_{e_i} / [(q) (S_e) (C_e)]$$

$$C_{he_o} = H_{e_o} / [(q) (S_e) (C_e)]$$

The right hand Elevon deflection angles were corrected for load deflections as follows:

$$\delta_{ei} = \delta_{ei_{set}} + H_{ei} K_{ei}$$

$$\delta_{eo} = \delta_{eo_{set}} + H_{eo} K_{eo}$$

where:  $K_{ei}$  and  $K_{eo}$  are calibrated deflection constants

$\delta_{ei_{set}}$  &  $\delta_{eo_{set}}$  are Elevon deflection settings

Aero acoustic (dynamic) pressure data from the Kulites were recorded on RMS meters to directly yield  $P_{rms}$  in. (lb./ft. <sup>2</sup>). These RMS pressures were reduced to; pressure coefficients  $C_{p_{rms}}$  then to the Aero Acoustic power terms (Decibels);

$$\text{Decibels: } db(rms)_i = 20 \log_{10} \left[ \frac{P_{rms_i} \times 10^9}{2.9} \right]$$

### FORCE AND MOMENT REFERENCE CENTERS

Total Orbiter Force & Moment Resolved About the Integrated Vehicle MRC	Full Scale	Model Scale
	$X_T$ 976	29.28
	$Y_T$ 0	0
	$Z_T$ 400	12.0
	$X_O$ 235	7.05
	$Y_O$ 0	0
R.H. Wing Force & Moment	$Z_O$ 63.5	1.905
	$X_O$ 1307	$X_O$ 39.21
	$Y_O$ 105	$Y_O$ 3.15
R.H. Elevon Hinge Moment About Hingeline	$Z_O$ 288	$Z_O$ 8.64
	$X_O$ 1387	$X_O$ 41.61

### MODEL REFERENCE DIMENSIONS

SYMBOL	MODEL SCALE AREA	FULL SCALE	DESCRIPTION
$S_w$	2.421 ft. <sup>2</sup>	2690 ft. <sup>2</sup>	Wing reference area
$l_b$	38.70 in.	1290.3 in.	Orbiter reference length
$b_w$	28.101 in.	936.7 in.	Wing bending reference length
$C_w$	14.244 in.	474.8 in.	Mean aerodynamic chord
$S_e$	0.189 ft. <sup>2</sup>	210 ft. <sup>2</sup>	Elevon reference area
$C_e$	2.721 in.	90.7 in	Elevon reference chord length
$X_1$	37.890 in.	1263.0 in.	Base pressure transfer distance
$X_2$	39.890 in.	1329.67	Base pressure transfer distance
$X_2$	-25.6702 in.	855.673 in.	Longitudinal transfer distance from orbiter balance referenced point to the integrated vehicle MRC
$Z_1$	-9.795 in	-326.5 in	Vertical transfer distance from orbiter balance center-line to integrated vehicle MRC

### ORBITER BASE AREA FOR PRESSURE TAP

SYMBOL	MODEL SCALE AREA (FT. <sup>2</sup> )	SYMBOL	MODEL SCALE AREA (FT. <sup>2</sup> )
A <sub>301</sub>	0.012813	A <sub>313</sub>	0.022146
A <sub>302</sub>	0.022146	A <sub>314</sub>	0.025837
A <sub>303</sub>	0.089535	A <sub>315</sub>	0.014764
A <sub>304</sub>	0.011073	A <sub>316</sub>	0.025837
A <sub>305</sub>	0.014764	A <sub>317</sub>	0.025837
A <sub>306</sub>	0.014764	A <sub>318</sub>	0.025837
A <sub>307</sub>	0.014764	A <sub>319</sub>	0.013831
A <sub>308</sub>	0.025837	A <sub>320</sub>	0.013273
A <sub>309</sub>	0.025837	A <sub>321</sub>	0.030447
A <sub>310</sub>	0.040600	A <sub>322</sub>	0.018268
A <sub>311</sub>	0.040600	A <sub>323</sub>	0.012189
A <sub>312</sub>	0.018455	A <sub>324</sub>	0.018283

### BODY FLAP BASE AREA FOR PRESSURE TAP

SYMBOL	MODEL SCALE AREA (FT. <sup>2</sup> )	SYMBOL	MODEL SCALE AREA (FT. <sup>2</sup> )
A <sub>401</sub>	- 0 -	A <sub>421</sub>	- 0 -
A <sub>402</sub>	- 0 -	A <sub>422</sub>	- 0 -
A <sub>403</sub>	- 0 -	A <sub>423</sub>	- 0 -
A <sub>404</sub>	- 0 -	A <sub>424</sub>	- 0 -
A <sub>405</sub>	0.01151	A <sub>425</sub>	- 0 -
A <sub>406</sub>	0.010267	A <sub>426</sub>	- 0 -
A <sub>407</sub>	0.0089838	A <sub>427</sub>	- 0 -
A <sub>408</sub>	0.0077004	A <sub>428</sub>	- 0 -
A <sub>409</sub>	- 0 -	A <sub>429</sub>	- 0 -
A <sub>410</sub>	- 0 -	A <sub>430</sub>	- 0 -
A <sub>411</sub>	- 0 -	A <sub>431</sub>	- 0 -
A <sub>412</sub>	- 0 -	A <sub>432</sub>	- 0 -
A <sub>413</sub>	0.012834	A <sub>433</sub>	- 0 -
A <sub>414</sub>	0.012834	A <sub>434</sub>	- 0 -
A <sub>416</sub>	0.012834	A <sub>435</sub>	- 0 -
A <sub>417</sub>	- 0 -	A <sub>436</sub>	- 0 -
A <sub>418</sub>	- 0 -	A <sub>437</sub>	.011551
A <sub>419</sub>	- 0 -	A <sub>438</sub>	.010267
A <sub>420</sub>	- 0 -	A <sub>439</sub>	.0089838
		A <sub>440</sub>	.0077004



The flow angularity (AFA) in the tunnel pitch-plane was determined by testing the model upright and inverted and the angle required to collapse the CN vs ALPHA curves determined. These values are shown below:

**PITCH-PLANE LOW ANGLE CORRECTIONS**

M	AFA	RUN #
0.60	0.008	322/323
0.80	0.069	329/330
0.90	0.085	335/336
0.95	0.010	347/348
1.05	0.081	353/354
1.10	0.067	362/363
1.15	0.118	368/369
1.25	0.097	374/375
1.30	0.093	473/474
1.35	0.117	480/481
1.40	0.068	487/488
1.50	0.010*	N/A

\* Estimated

## UNCERTAINTY OF MEASUREMENTS

Uncertainties (combinations of systematic and random errors) of the basic tunnel parameters were estimated from repeat calibrations of the instrumentation and from repeatability and uniformity of the test section flow during tunnel calibration, reference 2. Uncertainties in the instrumentation systems were estimated from repeat calibration of the systems against secondary standards whose uncertainties are traceable to the National Institute of Standards and Technology calibration equipment. The tunnel parameter and instrument uncertainties, for a 95-percent confidence level, were combined using the Taylor series method of error propagation described in reference 3 to determine the uncertainties of the parameters. These uncertainties are presented in the following Table.

Estimated Data Uncertainties

PARAMETER	VALUE	MACH NUMBER												
		0.60	0.80	0.90	0.95	1.05	1.10	1.15	1.25	1.30	1.35	1.40	1.55	
Orbiter	CN	0	0.0203	0.0162	0.0149	0.0144	0.0137	0.0133	0.0131	0.0126	0.0124	0.0123	0.0122	0.0119
		0.40	0.0205	0.0163	0.0150	0.0145	0.0136	0.0133	0.0130	0.0126	0.0124	0.0122	0.0121	0.0119
	CLM	0	0.0116	0.0093	0.0085	0.0083	0.0078	0.0076	0.0075	0.0072	0.0071	0.0070	0.0070	0.0068
		0.30	0.0118	0.0094	0.0086	0.0083	0.0079	0.0077	0.0075	0.0072	0.0071	0.0070	0.0069	0.0068
	CY	0	0.0104	0.0083	0.0077	0.0074	0.0070	0.0069	0.0067	0.0065	0.0064	0.0063	0.0063	0.0061
		0.10	0.0105	0.0084	0.0077	0.0075	0.0070	0.0069	0.0067	0.0065	0.0064	0.0063	0.0063	0.0061
	CLN	0	0.0060	0.0048	0.0044	0.0043	0.0040	0.0040	0.0039	0.0037	0.0037	0.0036	0.0036	0.0035
		0.10	0.0061	0.0049	0.0045	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0037	0.0036	0.0036
	CLL	0	0.0027	0.0021	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016
		0.05	0.0027	0.0022	0.0020	0.0019	0.0018	0.0018	0.0017	0.0017	0.0016	0.0016	0.0016	0.0016
	CA	0	0.0020	0.0016	0.0015	0.0015	0.0014	0.0013	0.0013	0.0013	0.0012	0.0012	0.0012	0.0012
		0.10	0.0022	0.0017	0.0016	0.0015	0.0014	0.0014	0.0014	0.0013	0.0013	0.0013	0.0013	0.0012
Wing	CNW	0	0.0309	0.0247	0.0228	0.0220	0.0208	0.0203	0.0199	0.0192	0.0189	0.0187	0.0185	0.0182
		0.20	0.0308	0.0246	0.0227	0.0219	0.0207	0.0202	0.0198	0.0191	0.0188	0.0186	0.0184	0.0181
	CBW	0	0.0025	0.0020	0.0019	0.0018	0.0017	0.0016	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015
		0.04	0.0026	0.0020	0.0019	0.0018	0.0017	0.0017	0.0016	0.0016	0.0015	0.0015	0.0015	0.0015
	CTW	0	0.0037	0.0030	0.0027	0.0026	0.0025	0.0025	0.0024	0.0023	0.0023	0.0022	0.0022	0.0022
		0.06	0.0038	0.0030	0.0028	0.0027	0.0025	0.0025	0.0024	0.0023	0.0023	0.0022	0.0022	0.0022
Elevans	CHEI	0	0.0151	0.0121	0.0111	0.0108	0.0102	0.0099	0.0097	0.0094	0.0093	0.0091	0.0090	0.0089
		0.08	0.0161	0.0128	0.0118	0.0115	0.0108	0.0106	0.0103	0.0100	0.0098	0.0097	0.0096	0.0094
	CHEO	0	0.0205	0.0164	0.0151	0.0146	0.0138	0.0135	0.0132	0.0127	0.0126	0.0124	0.0123	0.0120
		0.08	0.0203	0.0163	0.0150	0.0145	0.0137	0.0134	0.0131	0.0126	0.0125	0.0123	0.0122	0.0119
Pressure Coefficients	CP	0.5	0.0112	0.0090	0.0099	0.0095	0.0087	0.0084	0.0081	0.0077	0.0075	0.0072	0.0071	0.0067
		0.0	0.0112	0.0096	0.0084	0.0085	0.0080	0.0078	0.0076	0.0073	0.0072	0.0071	0.0070	0.0068
		-0.5	0.0145	0.0110	0.0083	0.0081	0.0077	0.0075	0.0074	0.0072	0.0071	0.0071	0.0071	0.0071

## REFERENCES

1. SSD91DO112A, Pretest Information for ASRB Test IA-613A of the 0.03-Scale 47-OTS Pressure Loads Space Shuttle model in the AEDC 16-Foot Transonic Wind Tunnel" dated March 9, 1991.
2. AEDC-TSR-91-P13," Effects of the Advanced Solid Propellant Rocket Motor (ASRM) on the Space Shuttle Launch Configuration (IA-613A)", dated June 1991.
3. Abernethy, R.B. and Thompson, J.W. Jr., "Handbook-Uncertainty in Gas Turbine Measurements." AEDC-TR-73-5 (AD755 356), February. 1973.
4. NASA-CR-167,671 "Results of Cold Plume Tests of the 0.010 Scale Model (75-OTS) in the NASA Ames Research Center 11x11-foot Wind Tunnel(IA-300)", dated September 1983
5. NASA Technical Paper 2569 "Investigation of Solid Plume Simulation Criteria to Produce Flight Plume Effects on Multibody Configurations in Wind Tunnel Tests" by Alonzo L. Frost and Charlie C. Dill, dated March 1986

**Table I Summary of Test Conditions**

**NOMINAL TEST CONDITIONS**

MACH NUMBER	PT (psfa)	RE x 10 <sup>6</sup>	Q (psf)	TT (deg F)	P (psfa)
0.60	1598	2.5	316	100	1253
0.80	1342	"	394	"	880
0.90	1274	"	427	"	753
0.95	1249	"	442	"	699
1.05	1216	"	467	"	606
1.10	1206	"	479	"	565
1.15	1200	"	489	"	528
1.25	1198	"	506	"	463
1.30	1201	"	513	"	434
1.35	1207	"	519	"	407
1.40	1216	"	524	"	382
1.55	1255	"	534	"	318

**Mach Sweeps**

M = 0.6 to 1.1 continuous sweep @ P<sub>T</sub> approx. = 1400 PSF

M > 1.1, M = 1.15, 1.25, 1.30, 1.35, 1.40, and 1.55 @ Re = 2.5 x 10<sup>6</sup>

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991																
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION				BETA					T	E	S	T	R	U	N	N	U	M	B	B	R	S		
		alpha mach	Plume	IEA	ELVI	ELVO		-4	0	+4																		
RCO001	ORB/ET (DOOR OFF) +	A	.60	OFF	TOP	10	9					324			325													
RCO002	RSRM	A	.80	OFF	TOP	10	9					331			332													
RCO003		A	.90	OFF	TOP	10	9					343			344*													
RCO004		A	.95	OFF	TOP	10	9					349			350													
RCO005		A	1.05	OFF	TOP	10	9					355			356													
RCO006		A	1.10	OFF	TOP	10	9					364			365*													
RCO007		A	1.15	OFF	TOP	10	9					370			371													
RCO008		A	1.25	OFF	TOP	10	9					376			377													
RCO009		A	1.25	OFF	TOP	10	5					503			504*													
RCO010		A	1.30	OFF	TOP	10	5					507			508													
RCO011		A	1.35	OFF	TOP	10	5					511			512													
RCO012		A	1.40	OFF	TOP	10	5					514			515*													
RCO013		A	1.40	OFF	TOP	10	-5					557			558													
RCO014		A	1.55	OFF	TOP	10	-5					561			562													
RCO015	B/L ORB/ET + RSRM	A	.60	S1,2	TOP	10	9					619			620													
RCO016		A	.80	S1,2	TOP	10	9					623			624													
RCO017		A	.90	S1,2	TOP	10	9					626			627*													
RCO018		A	.95	S1,2	TOP	10	9					630			631													
RCO019		A	1.05	S1,2	TOP	10	9					633			634													
RCO020		A	1.10	S1,2	TOP	10	9					637			647*													

\* INCLUDES ALPHA -4.5 DEG @ M =0.9;

-4.7 DEG @ M=1.1; -5.1 DEG @ M=1.25;

-4.8 DEG @ M=1.40

A: ALPHA = -8, -4, 0, +4 DEG.

IEABOX = 0.0 = TOP

= 180.0 = BOTTOM

= 999.0 = TOP + BOTTOM

alpha or beta

SCHEDULES

TABLE II -- PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)			DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991															
DATA SET		CONFIGURATION	SCHD.	CONTROL DEFLECTION						BETA				T	B	S	T	R	U	N	N	U	M	B	B	R	S	
IDENTIFIER				alpha	Plume	IEA	ELVI	ELVO	-4	0	+4																	
RCO021	B/L ORB/ET + RSRM	A	1.15	S1,2	TOP	10	9		640	641	642																	
RCO022		A	1.25	S1,2	TOP	10	9		644	645	646																	
RCO023	ORB/ET(DOOR OFF) +	A	1.25	S1,3	TOP	10	5		469	470*	471																	
RCO024	RSRM	A	1.30	S1,3	TOP	10	5		476	477	478																	
RCO025		A	1.35	S1,3	TOP	10	5		482	483	485																	
RCO026		A	1.40	S1,3	TOP	10	5		489	490*	492																	
RCO027		A	1.40	S1,3	TOP	10	-5		541	542	543																	
RCO028		A	1.55	S1,3	TOP	10	-5		545	546	547																	
RCO029	B/L ORB/ET + ASRM	A	.60	OFF	TOP	10	9		689	690	691																	
RCO030		A	.80	OFF	TOP	10	9		693	694	695																	
RCO031		A	.90	OFF	TOP	10	9		696	697*	698																	
RCO032		A	.95	OFF	TOP	10	9		702	703	704																	
RCO033		A	1.05	OFF	TOP	10	9		705	706	707																	
RCO034		A	1.10	OFF	TOP	10	9		709	710*	711																	
RCO035		A	1.15	OFF	TOP	10	9		712	713	714																	
RCO036		A	1.25	OFF	TOP	10	9		715	716	717																	
RCO037		A	1.25	OFF	TOP	10	5		1449	1450*	1451																	
RCO038		A	1.30	OFF	TOP	10	5		1453	1454	1455																	
RCO039		A	1.35	OFF	TOP	10	5		1457	1458	1459																	
RCO040		A	1.40	OFF	TOP	10	5		1460	1461*	1462																	

T B S T R U N N U M B E R S

alpha or beta  
SCHEDULES

A: ALPHA = -8, -4, 0, +4, DEG.

\* INCLUDES ALPHA -4.5 DEG @ M=0.9;  
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25 DEG;  
=4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)										DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																													
DATA SET		CONFIGURATION		SCHD.		CONTROL DEFLECTION				BETA																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
IDENTIFIER		alpha	mach	Plume	IEA	ELVI	ELVO		-4	0	+4																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						

T B S T R U N N U M B E R S

alpha or beta  
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

\* INCLUDES ALPHA -4.5 DEG @ M=0.90;

-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;

-4.8 DEG @ M=1.40

TABLE II -- PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)				DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991														
DATA SET		CONFIGURATION	SCHD.	CONTROL DEFLECTION			BETA							T	B	S	T	R	U	N	N	U	M	B	E	R	S	
IDENTIFIER	alpha mach		Plume	IEA	ELVI	ELVO	-4	0	+4																			
RCO061	A .90	B/L ORB/ET + ASRM	S1,2	TOP	10	5	1356	1357	1358																			
RCO062	A 1.10		S1,2	TOP	10	5	1359	1360	1361																			
RCO063	A 1.15		S1,2	TOP	10	5	1362	1363	1364																			
RCO064	A 1.25		S1,2	TOP	10	5	1365	1366	1367																			
RCO065	A .60		OFF	BOT	10	9	722	723	724																			
RCO066	A .80		OFF	BOT	10	9	725	726	727																			
RCO067	A .90		OFF	BOT	10	9	728	729*	730																			
RCO068	A .95		OFF	BOT	10	9	732	733	734																			
RCO069	A 1.05		OFF	BOT	10	9	735	736	737																			
RCO070	A 1.10		OFF	BOT	10	9	738	739*	740																			
RCO071	A 1.15		OFF	BOT	10	9	741	742	743																			
RCO072	A 1.25		OFF	BOT	10	9	745	746	747																			
RCO073	A 1.25		OFF	BOT	10	5	1427	1428*	1429																			
RCO074	A 1.30		OFF	BOT	10	5	1431	1432	1433																			
RCO075	A 1.35		OFF	BOT	10	5	1435	1436	1437																			
RCO076	A 1.40		OFF	BOT	10	5	1438	1439*	1440																			
RCO077	A 1.55		OFF	BOT	10	5	1441	1442	1443																			
RCO078	A 1.40		OFF	BOT	10	-5	1559	1560	1561																			
RCO079	A 1.55		OFF	BOT	10	-5	1563	1564	1565																			
RCO080	A .60		S1,2	BOT	10	9	756	757	758																			

\* INCLUDES ALPHA -4.5 DEG @ M=0.90;

-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;

-4.8 DEG @ M=1.40

A: ALPHA = -8, -4, 0, +4 DEG.

alpha or beta  
SCHEDULES



TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF-829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION				BETA					
		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4			
RCO081	B/L ORB/ET + ASRM	A	.80	S1,2	BOT	10	9	760	761	762			
RCO082		A	.90	S1,2	BOT	10	9	765	766*	767			
RCO083		A	.95	S1,2	BOT	10	9	768	769	770			
RCO084		A	1.05	S1,2	BOT	10	9	778	779	780			
RCO085		A	1.10	S1,2	BOT	10	9	782	783*	784			
RCO086		A	1.15	S1,2	BOT	10	9	785	786	787			
RCO087		A	1.25	S1,2	BOT	10	9	788	789	790			
RCO088		A	1.25	S1,3	BOT	10	5	1400	1401*	1402			
RCO089		A	1.30	S1,3	BOT	10	5	1405	1407	1408			
RCO090		A	1.35	S1,3	BOT	10	5	1410	1411	1412			
RCO091		A	1.40	S1,3	BOT	10	5	1413	1414*	1415			
RCO092		A	1.55	S1,3	BOT	10	5	1416	1417	1418			
RCO093		A	1.40	S1,3	BOT	10	-5	1540	1541	1542			
RCO094		A	1.55	S1,3	BOT	10	-5	1544	1545	1546			
RCO095		A	.60	OFF	BOT	8	9	1619	1620	1621			
RCO096		A	.80	OFF	BOT	8	9	1623	1624	1625			
RCO097		A	.90	OFF	BOT	8	9	1626	1627	1628			
RCO098		A	.95	OFF	BOT	8	9	1629	1630	1631			
RCO099		A	1.05	OFF	BOT	8	9	1632	1633	1634			
RCO0A0		A	1.10	OFF	BOT	8	9	1636	1637	1638			

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alpha or beta  
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

\* INCLUDES ALPHA -4.5 DEG @ M=.90;  
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;  
-4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991													
DATA SET		SCHD.		CONTROL DEFLECTION				BETA																	
IDENTIFIER	CONFIGURATION	alpha	nach	Plume	IEA	ELVI	ELVO	-4	0	+4															
RCO0A1	B/L ORB/ET + ASRM	A	1.15	OFF	BOT	8	9	1639	1640	1641															
RCO0A2		A	1.25	OFF	BOT	8	9	1642	1643	1644															
RCO0A3		A	1.25	OFF	BOT	8	5	1674	1675	1676															
RCO0A4		A	1.30	OFF	BOT	8	5	1679	1680	1681															
RCO0A5		A	1.35	OFF	BOT	8	5	1682	1683	1684															
RCO0A6		A	1.40	OFF	BOT	8	5	1685	1686	1687															
RCO0A7		A	1.55	OFF	BOT	8	5	1689	1690	1691															
RCO0A8		A	.60	S1,2	BOT	8	9	1586	1587	1588															
RCO0A9		A	.80	S1,2	BOT	8	9	1590	1591	1592															
RCO0B0		A	.90	S1,2	BOT	8	9	1593	1594	1595															
RCO0B1		A	.95	S1,2	BOT	8	9	1596	1597	1598															
RCO0B2		A	1.05	S1,2	BOT	8	9	1599	1600	1601															
RCO0B3		A	1.10	S1,2	BOT	8	9	1603	1604	1605															
RCO0B4		A	1.15	S1,2	BOT	8	9	1606	1607	1608															
RCO0B5		A	1.25	S1,2	BOT	8	9	1609	1610	1611															
RCO0B6		A	1.25	S1,3	BOT	8	5	1654	1655	1656															
RCO0B7		A	1.30	S1,3	BOT	8	5	1658	1659	1660															
RCO0B8		A	1.35	S1,3	BOT	8	5	1662	1663	1664															
RCO0B9		A	1.40	S1,3	BOT	8	5	1665	1666	1667															
RCO0C0		A	1.55	S1,3	BOT	8	5	1669	1670	1671															
												T	B	S	T	R	U	N	N	U	M	B	E	R	S

T E S T R U N N U M B E R S

alpha or beta  
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF-829)		DATA SET/RUN NUMBER COLLATION SUMMARY										DATE: MAR/APR 1991	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.		CONTROL DEFLECTION				BETA					
		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4			
RCO0C1	B/L ORB/ET + ASRM	A	.60	S1,2	T+B	10	5	1477	1478	1479			
RCO0C2		A	.90	S1,2	T+B	10	5	1481	1482	1483			
RCO0C3		A	1.10	S1,2	T+B	10	5	1484	1485	1486			
RCO0C4		A	1.15	S1,2	T+B	10	5	1488	1489	1490			
RCO0C5		A	1.25	S1,2	T+B	10	5	1491	1492	1493			
RCO0C6		A	1.25	S1,3	T+B	10	5	1501	1502	1503			
RCO0C7		A	1.30	S1,3	T+B	10	5	1505	1506	1507			
RCO0C8		A	1.35	S1,3	T+B	10	5	1508	1509	1510			
RCO0C9		A	1.40	S1,3	T+B	10	5	1512	1513	1514			
RCO0D0		A	1.55	S1,3	T+B	10	5	1515	1516	1517			
RCO0D1	ORB/ET(MIRROR) + ASRM	A	.60	S1,2	TOP	10	5	1720	1721	1722			
RCO0D2		A	.80	S1,2	TOP	10	5	1724	1725	1726			
RCO0D3		A	.90	S1,2	TOP	10	5	1727	1728	1729			
RCO0D4		A	.95	S1,2	TOP	10	5	1730	1731	1732			
RCO0D5		A	1.05	S1,2	TOP	10	5	1733	1734	1735			
RCO0D6		A	1.10	S1,2	TOP	10	5	1737	1738	1739			
RCO0D7		A	1.15	S1,2	TOP	10	5	1740	1741	1742			
RCO0D8		A	1.25	S1,2	TOP	10	5	1743	1744	1745			
RCO0D9		A	1.25	S1,3	TOP	10	5	1698	1699	1700			
RCO0E0		A	1.30	S1,3	TOP	10	5	1702	1703	1704			

A: ALPHA = -8, -4, 0, +4 DEG.

alpha or beta  
SCHEDULES

TABLE II -- PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB (IA613A)  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF - 829)		DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991		
DATA SET		SCHD.	CONTROL DEFLECTION					BETA						
IDENTIFIER	CONFIGURATION		alpha	mach	Plume	IEA	ELVI	ELVO	-4	0	+4			
RCO0E1	ORB/ET(MIRROR) + ASRM	A	1.35	S1,3	TOP	10	5		1706	1707	1708			
RCO0E2		A	1.40	S1,3	TOP	10	5		1709	1710	1711			
RCO0E3		A	1.55	S1,3	TOP	10	5		1712	1713	1714			
RCO0E4	B/L ORB/ET + RSRM	A	.60	OFF	TOP	10	9			664				
RCO0E5		A	.80	OFF	TOP	10	9			665				
RCO0E6		A	.90	OFF	TOP	10	9			666*				
RCO0E7		A	.95	OFF	TOP	10	9			667				
RCO0E8		A	1.05	OFF	TOP	10	9			668				
RCO0E9		A	1.10	OFF	TOP	10	9			670*				
RCO0F0		A	1.15	OFF	TOP	10	9			671				
RCO0F1		A	1.25	OFF	TOP	10	9			672*				
RCO0F2		A	1.35	OFF	TOP	10	9			675				
RCO0F3		A	1.40	OFF	TOP	10	9			676*				
RCO0F4		A	1.55	OFF	TOP	10	9			678				
RCO0F5		A	1.30	OFF	TOP	10	9				673			
RCO0F6		A	1.35	OFF	TOP	10	9				674			
RCO0F7	ORB/ET(DOOR OFF) +	-4	.60	S1,2	TOP	10	5			410				
RCO0F8	RSRM	-4	.80	S1,2	TOP	10	5			412				
RCO0F9		-4	.90	S1,2	TOP	10	5			413				
RCO0G0		-4	.95	S1,2	TOP	10	5			414				
		T B S T R U N N U M B E R S												

T E S T R U N N U M B E R S

alpha or beta  
SCHEDULES

A: ALPHA = -8, -4, 0, +4 DEG.

\* INCLUDES ALPHA -4.5 DEG @ M=0.90;  
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.25;  
-4.8 DEG @ M=1.40

TABLE II - PRESSURE LOADS TEST OF SSV IN PRESENCE OF ASRB  
RUN SCHEDULE

TEST: IA613A (AEDC 16TF-829)			DATA SET/RUNNUMBER COLLATION SUMMARY										DATE: MAR/APR 1991	
DATA SET IDENTIFIER	CONFIGURATION	SCHD.	CONTROL DEFLECTION				BETA							
			alpha mach	Plume	IEA	ELVI	ELVO	-4	0	+4				
RCO0G1	ORB/ET(DOOR OFF) +	-4	1.05	S1,2	TOP	10	5		415					
RCO0G2	RSRM	-4	1.10	S1,2	TOP	10	5		416					
RCO0G3		-4	1.15	S1,2	TOP	10	5		417					
RCO0G4		-4	1.25	S1,2	TOP	10	5		421					
RCO0G5		-4	1.25	S1,2	TOP	10	5		447					
RCO0G6		-4	1.30	S1,2	TOP	10	5		451					
RCO0G7		-4	1.35	S1,2	TOP	10	5		452					
RCO0G8		-4	1.40	S1,2	TOP	10	5		454					
RCO0G9		-4	1.25	S1,3	TOP	10	5		458					
RCO0H0		-4	1.40	S1,3	TOP	10	5		459					
RCO0H1		-4	1.55	S1,3	TOP	10	5		461					
RCO0H2	B/L ORB/ET + ASRM	A	.90	S1,2	BOT	10	9	763						
RCO0H3		A	1.05	S1,2	BOT	10	9	773	775	776				
RCO0H4	B/L ORB/ET + RSRM	A	1.10	S1,2	TOP	10	9		638					
RCO0H5		A	1.25	S1,2	TOP	10	9		653*					
RCO0H6		A	1.30	S1,2	TOP	10	9		655					
RCO0H7		A	1.35	S1,2	TOP	10	9		565					
RCO0H8		A	1.40	S1,2	TOP	10	9		657*					
RCO0H9		A	1.55	S1,2	TOP	10	9		658					
RCO0I0		-4	SWF	S1,2	TOP	10	9		603					

T B S T R U N N U M B E R S

\* INCLUDES ALPHA -4.5 DEG @ M=0.90;  
-4.7 DEG @ M=1.10; -5.1 DEG @ M=1.10;  
-4.8 DEG @ M=1.40

A: ALPHA = -8, -4, 0, +4 DEG.

alpha or beta  
SCHEDULES



TABLE II - (Continued)

VOLUME I - FORCE DATA

1ST CHARACTER ID	1ST IND. VAR.	2ND IND. VAR.	COEFFICIENTS
R	BETA	ALPHA	MACH CN CNF CLM CLMF CA CAF CY CYN CBL
S	BETA	ALPHA	MACH PHI CHEI CHEO CNW CBW CTW
T	BETA	ALPHA	MACH CNB CNBO CNBF CLMB CAB CPAO CPAT CPAS

R DATASETS PAGES 1-167

S DATASETS PAGES 168-334

T DATASETS PAGES 335-501

NOTE: The first and second independent variable for the Mach sweep runs (D/S's I0 and I1) are ALPHA and MACH, respectively and the fourth character of the dataset ID is used to identify subdivisions of the Mach sweep.

VOLUME II - PRESSURE DATA

4TH CHARACTER ID	COMPONENT	PRINT PAGE NO.	MICROFICHE PAGE NO.
B	ORBITER FUSELAGE	1- 2810	1 - 45
E	ORBITER BASE	2811- 4039	45- 65
G	BODY FLAP -UPPER SURFACE	4040- 4741	65- 76
F	BODY FLAP - LOWER SURFACE	4742- 5443	76- 87
U	WING - UPPER SURFACE	5444- 8953	88-143
L	WING - LOWER SURFACE	8954-12801	143-204
V	VERTICAL TAIL	12802-13660	204-218
T	EXTERNAL TANK	13661-17209	219-275
A	EXTERNAL TANK BASE	17210-18438	275-294
M	EXTERNAL TANK LO <sub>2</sub> FEEDLINE	18439-19352	294-309
S	LEFT SRB	19353-21136	310-338
C	LEFT SRB BASE	21137-21668	338-346
H	SRB SYSTEMS TUNNEL	21669-22897	346-366

NOTE: For the Mach sweep datasets (D/S's I0 and I1) the first character of the dataset ID is used to identify subdivisions.

TABLE II (Concluded)

VOLUME II - KULITE DATA (DBRMS)

<u>4TH CHARACTER ID</u>	<u>COMPONENT</u>	<u>PRINT PAGE NO.</u>	<u>MICROFICHE PAGE NO.</u>
N	ORBITER FUSELAGE	22898-23443	367-375
O	WING - UPPER SURFACE	23444-23886	375-382
P	WING - LOWER SURFACE	23887-24432	382-391
Q	EXTERNAL TANK	24433-25522	391-408
R	LEFT SRB	25523-26612	408-426

NOTE: 1st Character ID for Kulite data is K except for the Mach sweep runs where it is used to identify subdivisions of D/S's IO and I1.



TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A      SSV MODEL 47-OTS      ORBITER ESP HOOKUP

ESP PORT No.	ESP #1 Fuselage		ESP #2 Fuselage	ESP #3 Fuselage/Wing
	Press. No.	COMMENT	Press. No.	Comment
1	Cal.		Cal.	
2	1		58	113
3	2		59	114
4	3		60	115
5	5		61	116
6	6		62	117
7	7		63	118
8	8		64	119
9	9		65	121
10	10		69	122
11	11		70	123
12	12		71	124
13	13		72	125
14	17		73	126
15	18		74	127
16	19		75	128
17	20		76	130 BC/(Plugged)
18	21		77	131 ? (watch)
19	22		78	132
20	23		79	133
21	24		80	134
22	25		81	135
23	29		85	136
24	30		86	137
25	31		87	138
26	32		88 BC/(Plugged)	140 BC/(Plugged)
27	33		89	141
28	34		90	142
29	35		91	143
30	36		92	144
31	37		94	145
32	Cal.		Cal.	Cal.
33	41 BC/(Out)		95	146
34	42		96	147
35	43		97	148
36	44		98	150
37	45		99	151
38	46		100	601
39	47		101	602
40	48		103	603
41	49		104	604
42	53		105	605
43	54		106	606 BC/(Leak)
44	55		107	607
45	56		108	608
46	57		109	609
47	Open		110	610
48	Open		112	611

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

PORT No.	ESP #4 Wing		Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
	Press. No.	COMMENT						
1	Cal.		Cal.		Cal.		Cal.	
2	612		658		707		707	
3	613		659		708		708	
4	614		660		709		709	
5	615		661		710		710	
6	616		662		711		711	
7	617		663	? (watch)	712		712	
8	618	BC/(Out)	664		713		713	
9	619	BC/(Out)	665		714		714	
10	620		667		716		716	
11	621		668		717		717	
12	622		669		718		718	
13	623		670		719		719	
14	624		671		720		720	
15	625		672		721		721	
16	626		673		722		722	
17	627		674		723		723	
18	628		675		724		724	
19	629		676		725		725	
20	630		677		726		726	
21	631		678		727		727	
22	633		679		728		728	
23	634		680		729		729	
24	635		681		730		730	
25	636		682		732		732	
26	637		684		733		733	
27	638		685		734		734	
28	639		686		735		735	
29	640		687		736		736	
30	641		688		737		737	
31	642		689		738		738	
32	Cal.		Cal.		Cal.		Cal.	
33	643		690		739	BC/(Leak)	739	BC/(Leak)
34	644		691		740		740	
35	645		692		741		741	
36	646		693	BC/(Out)	742		742	
37	647		694		743		743	
38	648		695		744	BC/(Plugged)	744	BC/(Plugged)
39	650		696		745		745	
40	651		697	BC/(behind screwhole)	746		746	
41	652		698		748		748	
42	653		700		749		749	
43	654		701		750		750	
44	655		702		751		751	
45	656		703		752		752	
46	657		704		753		753	
47	Open		705	SL @R#1583	214		214	
48	Open		706		215		215	

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP #7 Wing			ESP #8 Wing			ESP #9 Wing		
PORT No.	Press. No.	COMMENT	Press. No.	COMMENT		Press. No.	COMMENT	
1	Cal.		Cal.			Cal.		
2	754		803			848		
3	755		804			849	?(watch)	
4	756		805			850		
5	757		806			851		
6	758		807			852		
7	759		808			853		
8	760		809			854		
9	761		810			855		
10	762		812			857		
11	764		813	BC/(Out)		858	SL>R#1583	
12	765		814			859		
13	766		815	? >R#557		860		
14	767		816			861		
15	768		817			862		
16	769		818			863		
17	770		819			864		
18	771		820			865		
19	772		821			866		
20	773		822			867		
21	774		823			868		
22	775		824			869	BC/>R#1583	
23	776		825			870		
24	777		827			872		
25	778	?(watch)	828			873	BC/(Out)	
26	780		829			874		
27	781		830			875		
28	782		831			876		
29	783		832			877		
30	784		833			878		
31	785		834			879		
32	Cal.		Cal.			Cal.		
33	786		835			880		
34	787		836			881		
35	788		837			882		
36	789		838			883		
37	790		839			884		
38	791		840			886	LK R#1525-1539	
39	792		295			887		
40	793		296			888		
41	794		844			889		
42	796		845			890		
43	797	?(watch)	846			891		
44	798		847			892		
45	799		291			Open		
46	800		292			Open		
47	801		293			Open		
48	802		294			Open		

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP PORT No.	ESP #10 Wing & Fuselage		ESP #11 Fuselage		ESP #12 Fuselage	
	Press. No.	COMMENT	Press. No.	COMMENT	Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	893		218		301	
3	894		219		302	
4	895		220		303	
5	896		221		304	
6	897		222		305	
7	898		223		306	
8	901	BC/(Open)	224		307	
9	900		225	BC/>R#385	308	
10	902		226		309	
11	903		227		310	
12	904		183		311	
13	905		184		312	
14	906	BC/(Not Exist)	185		313	
15	907		186		314	
16	909		187		315	
17	910		188		316	
18	911		189		317	
19	912		190		318	
20	152		191		319	
21	154		192		320	
22	155		193		321	
23	156		194		322	
24	157		195		323	
25	158		196		324	
26	159		197		401	
27	161		198		402	
28	162		199		403	
29	163		200		404	
30	164		201		405	
31	165		202		406	
32	Cal.		Cal.		Cal.	
33	166		288		407	
34	167		289		408	
35	168		290		409	
36	169		204		410	
37	170		205		411	
38	171		206		412	
39	173		207		413	
40	174		208		414	
41	175		209		415	
42	176		210		416	Sub #424/(Open)
43	177		211		417	
44	178		212		418	
45	179		216		419	
46	180		217		420	
47	181		576		421	
48	Open		297		422	

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution



TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

ORBITER ESP HOOKUP

ESP PORT No.	ESP #13 Body Flap & V.T.		ESP #14 Vertical Tail			
	Press. No.	COMMENT	Press. No.	COMMENT		
1	Cal.		Cal.			
2	423		530			
3	424		531			
4	425		532			
5	426		533			
6	427		534			
7	428		535			
8	429		536			
9	430		537			
10	431		538			
11	432		539			
12	433		540			
13	434		541			
14	435		542			
15	436		543			
16	437		544			
17	438		545			
18	439		546			
19	440		547			
20	501		548			
21	502		549			
22	503		550			
23	504		551			
24	505		552			
25	506		553			
26	507		554			
27	509		555			
28	510		556			
29	511		557			
30	512		558			
31	513		559			
32	Cal.		Cal.			
33	514		560			
34	515		561			
35	516		562			
36	517		563			
37	518		564			
38	519		565			
39	520		566			
40	521		567			
41	522		568			
42	523		569			
43	524		570			
44	525		571			
45	526		572			
46	527		573			
47	528		574			
48	529		575			

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST #613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP # PORT No.	ESP #15 Spike Nose Press. No.	COMMENT	ESP #16 Ogive Press. No.	COMMENT	ESP #17 Ogive Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	1002		1046		1088	
3	1003		1047		1089	
4	1004		1048		1090	
5	1005		1049		1091	
6	1006		1050		1092	
7	1007		1051		1093	
8	1008		1052		1094	
9	1009		1053		1095	
10	1010		1054		1096	
11	1011		1055		1097	
12	1012		1056		1098	
13	1013		1057		1099	
14	1014		1058		1100	
15	1015		1059		1101	
16	1016		1060		1102	
17	1017		1061		1103	
18	1018		1062		1104	
19	1019		1063		1105	
20	1020		1064	BC/(Plugged>R#407)	1106	
21	1021		1065		1107	
22	1022		1066		1108	
23	1023		1067		1109	
24	1024	? (watch)	1068		1110	BC/(>R#447)
25	1025		1069		1111	
26	1026		1070		1112	
27	1027		1071		1113	
28	1028		1072		1114	
29	1029		1073		1115	
30	1030		1074		1116	
31	1031		1075		1117	
32	Cal.		Cal.		Cal.	
33	1032		1076		1118	
34	1033		1077		1119	
35	1034		1078		1120	
36	1035		1079		1121	
37	1036		1080		1122	
38	1037	BC/(>R#469)	1081		1123	
39	1038		1082		1124	
40	1039		1083		1125	
41	1040		1084		1126	
42	1041		1085		1127	
43	1042		1086		1128	
44	1043		1087		1129	
45	1044		Open		Open	
46	1045		Open		Open	
47	Open		Open		Open	
48	Open		Open		Open	

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP #18 Mid & Aft-Body			ESP #19 Mid & Aft-Body			ESP #20 Mid & Aft-Body		
ESP PORT No.	Press. No.	COMMENT	Press. No.	COMMENT		Press. No.	COMMENT	
1	Cal.		Cal.			Cal.		
2	1130		1176			1223		
3	1131		1177			1224		
4	1132		1178			1225		
5	1133		1179			1226		
6	1134		1180			1227		
7	1135		1181			1228		
8	1136		1182			1229		
9	1137		1183			1230		
10	1138		1184			1231	BC/(Out>R#409)	
11	1139		1185			1232		
12	1140		1186			1233		
13	1141		1187			1234		
14	1142		1188			1235		
15	1143		1189			1236		
16	1144		1190			1237		
17	1145		1191			1238	BC/(Out>R#409)	
18	1146		1192			1239		
19	1147		1193			1240		
20	1148		1194			1241		
21	1149		1195			1242		
22	1150		1196			1243		
23	1151		1197			1244		
24	1152		1198			1245		
25	1153		1199			1246		
26	1154		1200			1247		
27	1155		1201			1248		
28	1156		1202			1249		
29	1157		1203			1250		
30	1158		1204			1251		
31	1159		1205			1252		
32	Cal.		Cal.			Cal.		
33	1160		1206			1253		
34	1161		1207			1254		
35	1162		1208			1255		
36	1163		1209			1256		
37	1164		1210			1257		
38	1165		1212			1258		
39	1166		1213			1259		
40	1167		1214			1260		
41	1168		1215			1261		
42	1169		1216			1262		
43	1170		1217			1263		
44	1171		1218			1264		
45	1172		1219			1265		
46	1173		1220			1266	BC/(Bad)	
47	1174		1221			1267		
48	1175		1222			1268		

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP #21 Mid & Aft-Body		ESP #22 Mid & Aft-Body	ESP #23 Mid & Aft-Body
	Press. No.	COMMENT	Press. No.	Press. No.
1	Cal.		Cal.	Cal.
2	1269		1309	1348
3	1270		1310	1349
4	1271		1311	1350
5	1272	BC/(>R#469)	1312	1351
6	1273		1313	1352
7	1274		1314	1353
8	1275		1315	1354
9	1276		1316	1355
10	1277		1317	1356
11	1278		1318	1357
12	1279		1319	1358
13	1280		1320	1359
14	1281		1321	1360
15	1282		1322	1361
16	1283		1323	1362
17	1284		1324	1363
18	1285		1325	1364
19	1286		1326	1365
20	1287		1327	1366
21	1288		1328	1367
22	1289		1329	1368
23	1290		1330	1369
24	1291		1331	1370
25	1292		1332	1371
26	1293		1333	1372
27	1294		1334	1373
28	1295		1335	1374
29	1296		1336	1375
30	1297		1337	1376
31	1298		1338	1377
32	Cal.		Cal.	Cal.
33	1299		1339	1378
34	1300		1340	1379
35	1301		1341	1380
36	1302		1342	1381
37	1303		1343	1382
38	1304		1344	1383
39	1305		1345	1384
40	1306		1346	1385
41	1307		1347	1386
42	1308		Open	Open
43	Open		Open	Open
44	Open		Open	Open
45	Open		Open	Open
46	Open		Open	Open
47	Open		Open	Open
48	Open		Open	Open

Note: BC is Bad Code - Data No Good  
 >R#xxx is Runs Greater Than R#xxx  
 ? is Marginal leak found, use data with caution



TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP #24 Mid & Aft-Body Press. No.	COMMENT	ESP #25 ET Base Press. No.	COMMENT	ESP #26 Base & LO2 Feedli Press. No.	COMMENT
1	Cal.		Cal.		Cal.	
2	1387		1501		1546	
3	1388		1502		1547	
4	1389		1503		1548	
5	1390		1504		1549	
6	1391		1505		1550	
7	1392		1506		1551	
8	1393		1507		1552	
9	1394		1508		1553	
10	1395		1509		1554	
11	1396		1510		1555	
12	1397		1511		1556	
13	1398		1512		1557	
14	1399		1513		1558	
15	1400		1514		1559	
16	1401		1515		1560	
17	1402		1516		1561	
18	1403		1517		1562	
19	1404		1518		1563	
20	1405		1519		1564	
21	1406		1520		1565	
22	1407		1521		1566	
23	1408		1522		1567	
24	1409		1523		1568	
25	1410		1524		1569	
26	1411		1525		1570	
27	1412		1526		1571	
28	1413		1527		1572	
29	1414		1528		1573	
30	1415		1529		1574	
31	1416		1530		1782	
32	Cal.		Cal.		Cal.	
33	1417		1531		1783	
34	1418		1532		1784	
35	1419		1533		1785	
36	1420		1534		1786	
37	1421		1535		1787	
38	1422		1536		1788	
39	1423		1537		1789	
40	1424		1538		1790	
41	1425		1539		1791	
42	Open		1540		1792	
43	Open		1541		1793	
44	Open		1542		1794	
45	Open		1543		1795	
46	Open		1544		Open	
47	Open		1545		Open	
48	Open		Open		Open	

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

EXTERNAL TANK ESP HOOKUP

ESP PORT No.	ESP # 27 LO2 Feedline					
	Press. No.	COMMENT				
1	Cal.					
2	1796					
3	1797					
4	1798					
5	1799					
6	1800					
7	1801					
8	1802					
9	1803					
10	1804					
11	1805					
12	1806					
13	1807					
14	1808					
15	1809					
16	1810					
17	1811					
18	1812					
19	1813					
20	1814					
21	1815					
22	1816					
23	1817					
24	1818					
25	1819					
26	1820					
27	1821					
28	1822					
29	1823					
30	1824					
31	1825					
32	Cal.					
33	1826					
34	1827					
35	1828					
36	1829					
37	1830					
38	1831					
39	1832					
40	1833					
41	1834					
42	1835					
43	1836					
44	1837					
45	1838					
46	1839					
47	1840					
48	1841					

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

SOLID ROCKET BOOSTER ESP HOOKUP

ESP PORT No.	ESP #28 Nose & ETA Ring		ESP #29 Fwd Shell & Sys Tun	ESP #30 Lwr Fwd Shell
	Press. No.	COMMENT		
1	Cal.		Cal.	
2	2001		2028	
3	2002	?(R#498-517)	2029	?(R#498-517)
4	2003		2030	
5	2004	?(R#498-517)	2037	? (watch)+(R#498-517)
6	2005		2038	
7	2006	?(R#498-517)	2039	?(R#498-517)
8	2007		2046	
9	2008	?(R#498-517)	2047	?(R#498-517)
10	2009		2048	
11	2010	?(R#498-517)	2053	?(R#498-517)
12	2011		2054	
13	2012	?(R#498-517)	2055	?(R#498-517)
14	2013		2064	
15	2014	?(R#498-517)	2065	?(R#498-517)
16	2015		2066	
17	2016	?(R#498-517)	2073	?(R#498-517)
18	2017		2074	
19	2018	?(R#498-517)	2075	?(R#498-517)
20	2019		2082	
21	2020	?(R#498-517)	2083	?(R#498-517)
22	2021		2084	? (watch)
23	2022	?(R#498-517)	2091	?(R#498-517)
24	2023		2092	
25	2024	?(R#498-517)	2093	?(R#498-517)
26	2025		2301	
27	2096	?(R#498-517)	2302	?(R#498-517)
28	2097	? (watch)	2303	BC/(Plugged>R#1525)
29	2098	? (watch)+(R#498-517)	2304	?(R#498-517)
30	2099		2305	
31	2101	?(R#498-517)	2306	? (watch)&R#498-517
32	Cal.		Cal.	
33	2103	?(R#498-517)	2307	?(R#498-517)
34	2104		2308	
35	2105	?(R#498-517)	2309	?(R#498-517)
36	2106		2310	
37	2108	?(R#498-517)	2311	?(R#498-517)
38	Open		2312	
39	Open		2313	?(R#498-517)
40	Open		2314	
41	Open		2331	?(R#498-517)
42	Open		2333	BC/(Out)
43	Open		Open	
44	Open		Open	
45	Open		Open	
46	Open		Open	
47	Open		Open	
48	Open		Open	
				2026
				2027
				?(R#498-517)
				2032
				2033
				?(R#498-517)
				2034
				2035
				BC>R#780(?(R#498-517)
				2036
				2040
				?(R#498-517)
				2041
				2042
				?(R#498-517)
				2043
				2044
				?(R#498-517)
				2045
				2049
				?(R#498-517)
				2050
				2051
				?(R#498-517)
				2052
				2056
				?(R#498-517)
				2057
				2058
				?(R#498-517)
				2059
				2060
				?(R#498-517)
				2061
				2062
				?(R#498-517)
				2063
				2067
				?(R#498-517)
				2068
				2069
				?(R#498-517)
				2070
				2071
				?(R#498-517)
				Cal.
				2072
				?(R#498-517)
				2076
				2077
				?(R#498-517)
				2078
				2079
				?(R#498-517)
				2080
				2081
				?(R#498-517)
				2085
				2086
				?(R#498-517)
				2087
				2088
				?(R#498-517)
				2089
				2090
				?(R#498-517)
				2094
				2095
				?(R#498-517)
				Open

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

TABLE III: IA-613A ESP/PRESS. TAP HOOKUP

TEST # 613A

SSV MODEL 47-OTS

SOLID ROCKET BOOSTER ESP HOOKUP

ESP PORT No.	ESP #31 Top Aft Shell		ESP #32 Skirt-Nozzle-Base		
	Press. No.	COMMENT		Press. No.	COMMENT
1	Cal.		Cal.		
2	2115		2144		
3	2116	?(R#498-517)	2145	?(R#498-517)	
4	2117		2146		
5	2122	?(R#498-517)	2147	?(R#498-517)	
6	2123		2148		
7	2124	?(R#498-517)	2149	?(R#498-517)	
8	2131		2150		
9	2132	?(R#498-517)	2151	?(R#498-517)	
10	2133		2152		
11	2138	?(R#498-517)	2153	?(R#498-517)	
12	2139		2154		
13	2140	?(R#498-517)	2155	?(R#498-517)	
14	2110		2156		
15	2111	?(R#498-517)	2157	?(R#498-517)	
16	2112		2158		
17	2113	?(R#498-517)	2159	?(R#498-517)	
18	2114		2160		
19	2118	?(R#498-517)	2161	?(R#498-517)	
20	2119		2162		
21	2120	?(R#498-517)	2163	?(R#498-517)	
22	2121		2164		
23	2125	?(R#498-517)	2165	?(R#498-517)	
24	2126		2166		
25	2127	?(R#498-517)	2167	?(R#498-517)	
26	2128		2168		
27	2129	?(R#498-517)	2169	?(R#498-517)	
28	2130		2170		
29	2134	?(R#498-517)	2171	?(R#498-517)	
30	2135		2172		
31	2136	?(R#498-517)	2173	?(R#498-517)	
32	Cal.		Cal.		
33	2137	?(R#498-517)	2174	?(R#498-517)	
34	2141		2175		
35	2142	?(R#498-517)	2176	?(R#498-517)	
36	2327		2177		
37	2328	?(R#498-517)	2178	?(R#498-517)	
38	2329		2179		
39	2330	?(R#498-517)	2201	?(R#498-517)	
40	2143		2202		
41	Open		2203	?(R#498-517)	
42	Open		2204		
43	Open		2205	?(R#498-517)	
44	Open		2206		
45	Open		2207	?(R#498-517)	
46	Open		2208		
47	Open		2209	?(R#498-517)	
48	Open		2210		

Note: BC Is Bad Code - Data No Good  
 >R#xxx Is Runs Greater Than R#xxx  
 ? Is Marginal leak found, use data with caution

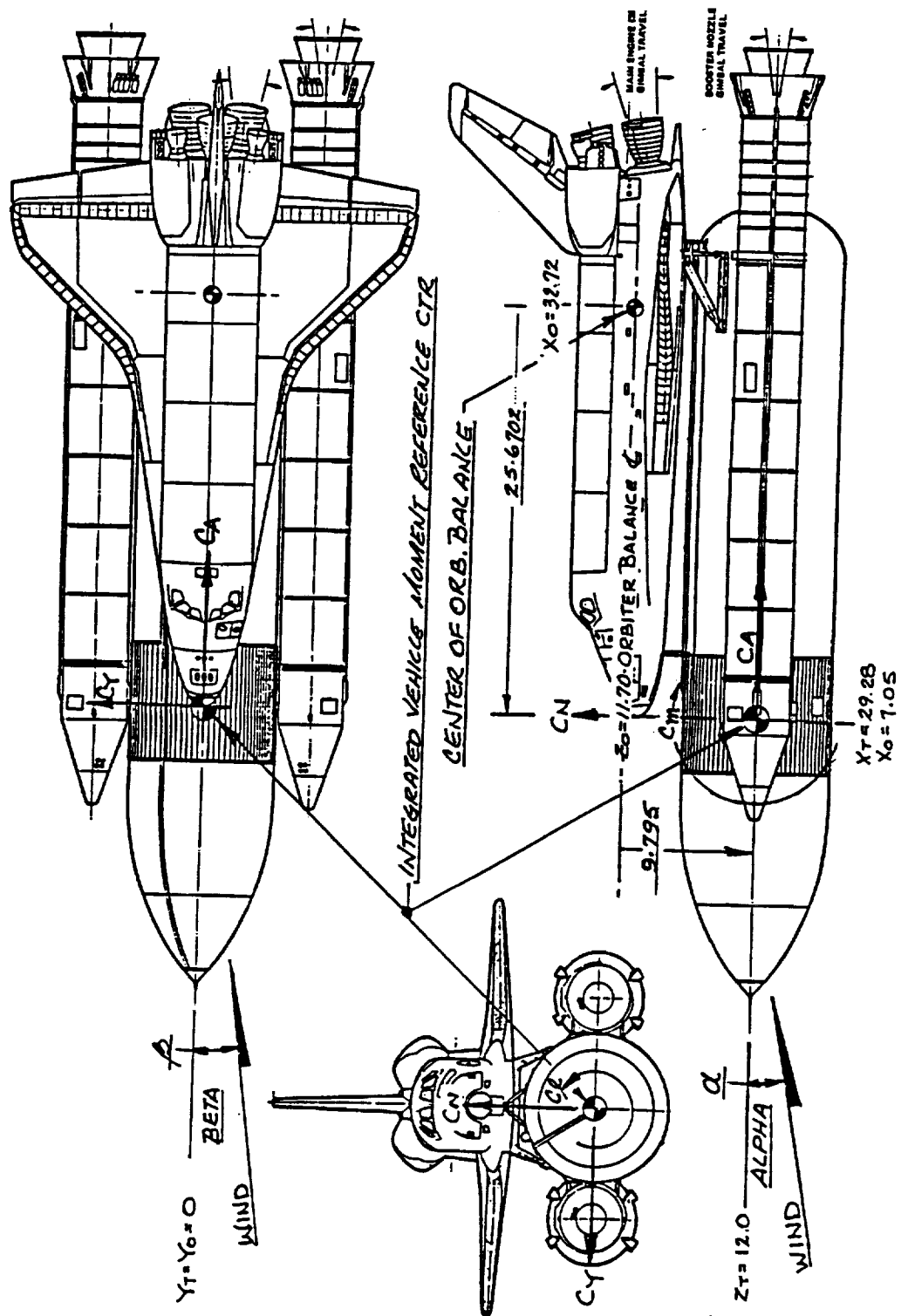
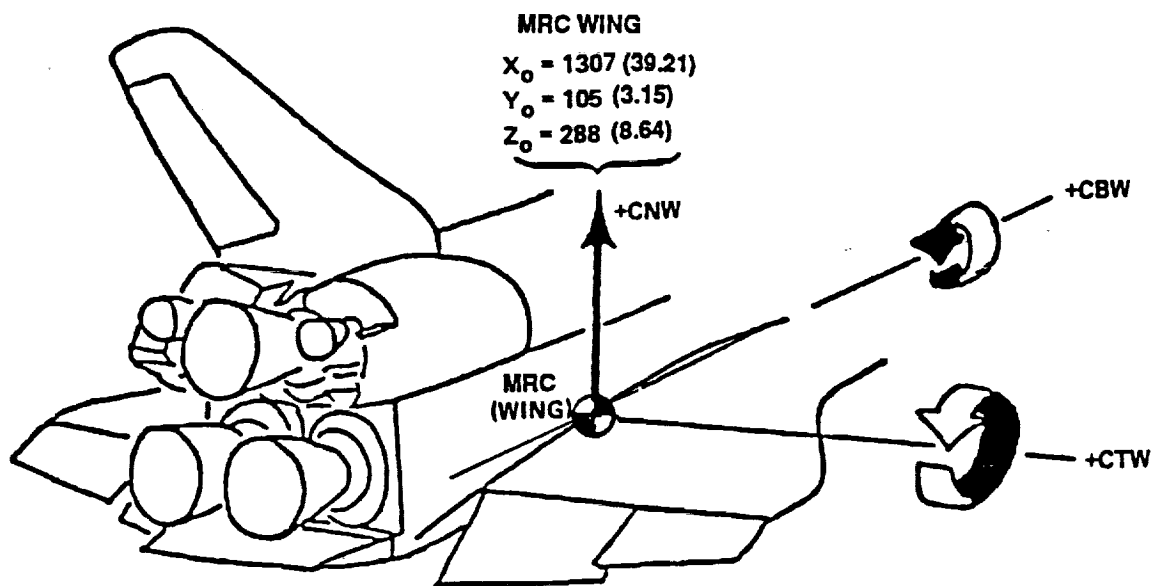
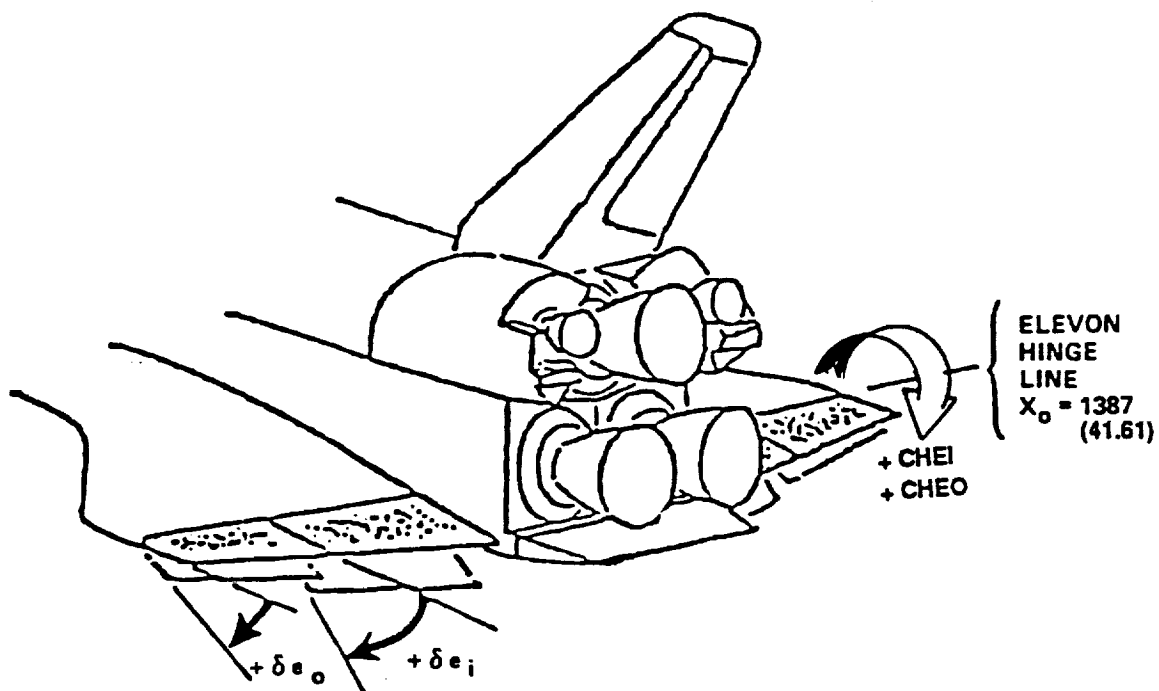


Figure 1a ; Body Axis System and Orbiter Balance Transfer



ALL DIMENSIONS IN INCHES  
 MODEL SCALE IN PARENTHESES

Figure 1b; Wing coordinate axes.



ALL DIMENSIONS IN INCHES  
 MODEL SCALE IN PARENTHESES

Figure 1c; Elevon coordinate axes.









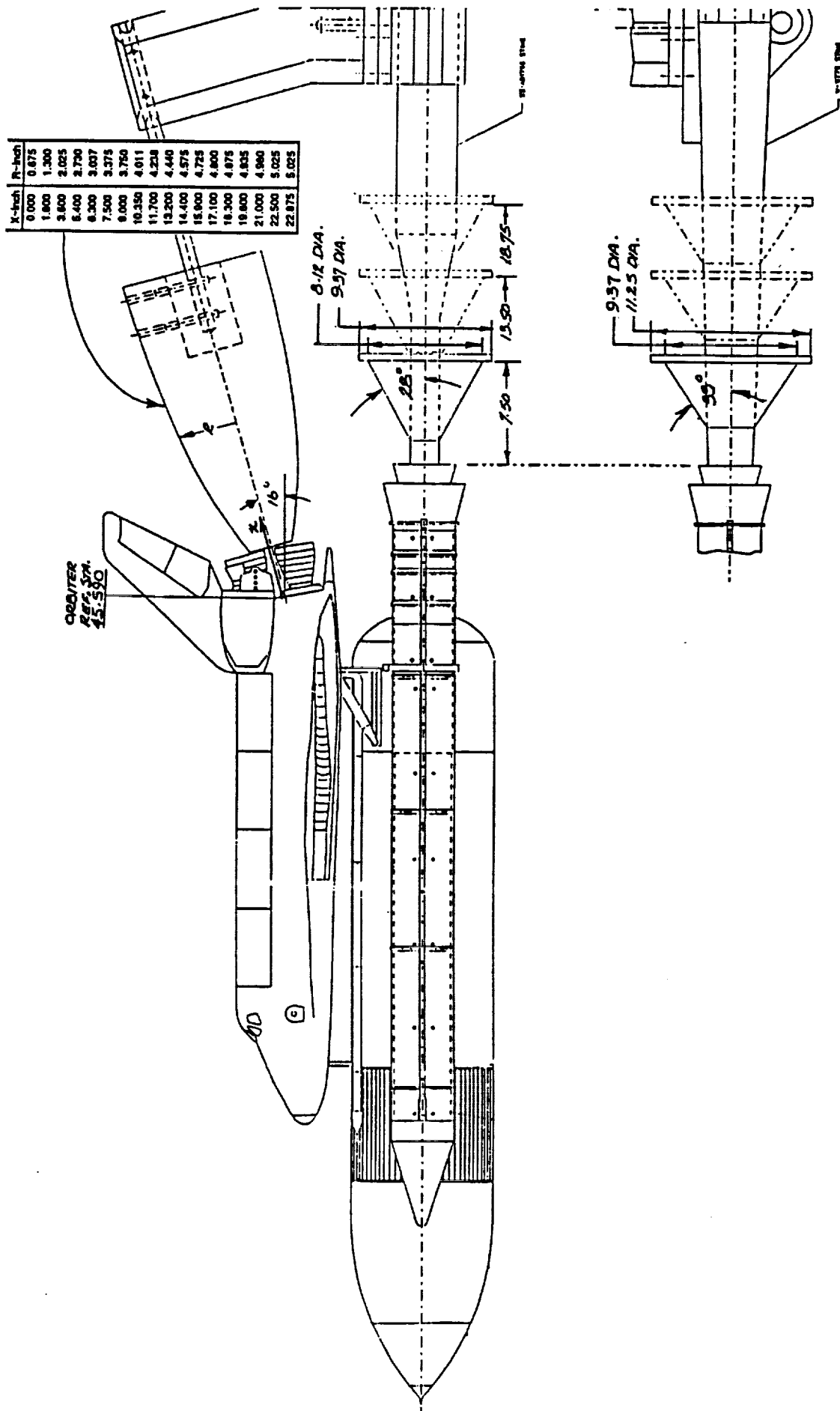


Figure 2 c ; Solid Plume Simulators

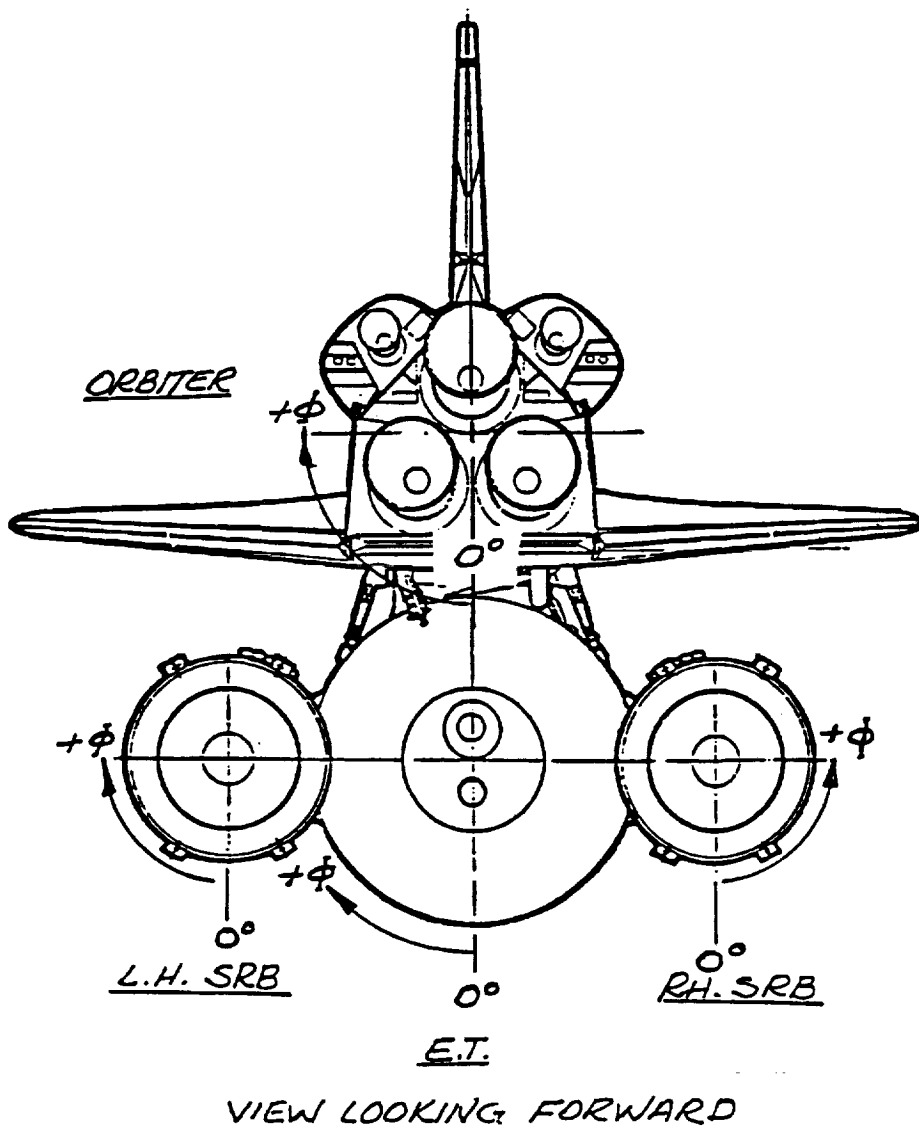
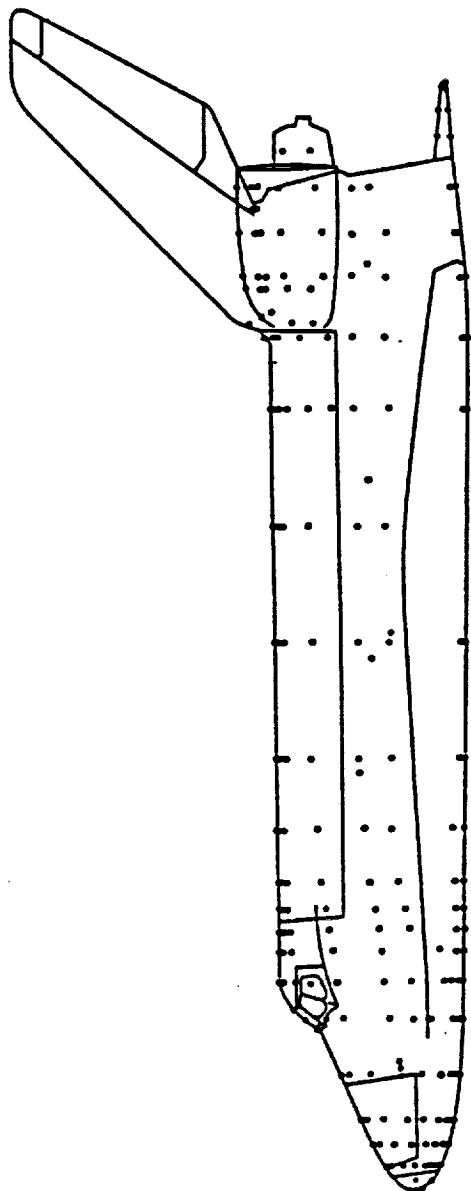
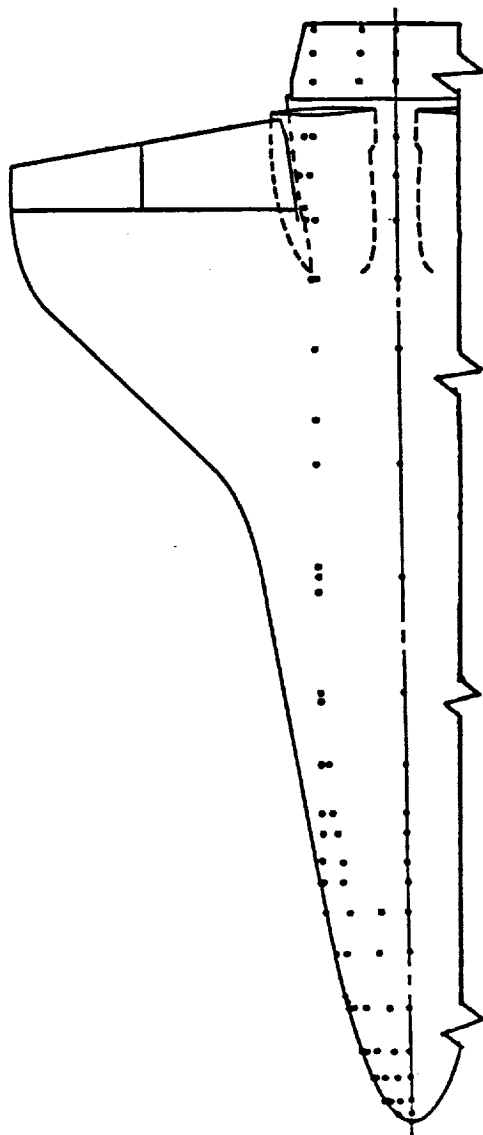


Figure 3a: Instrumentation Phi ( $\phi$ ) Angle Definition



ORBITER SIDE VIEW

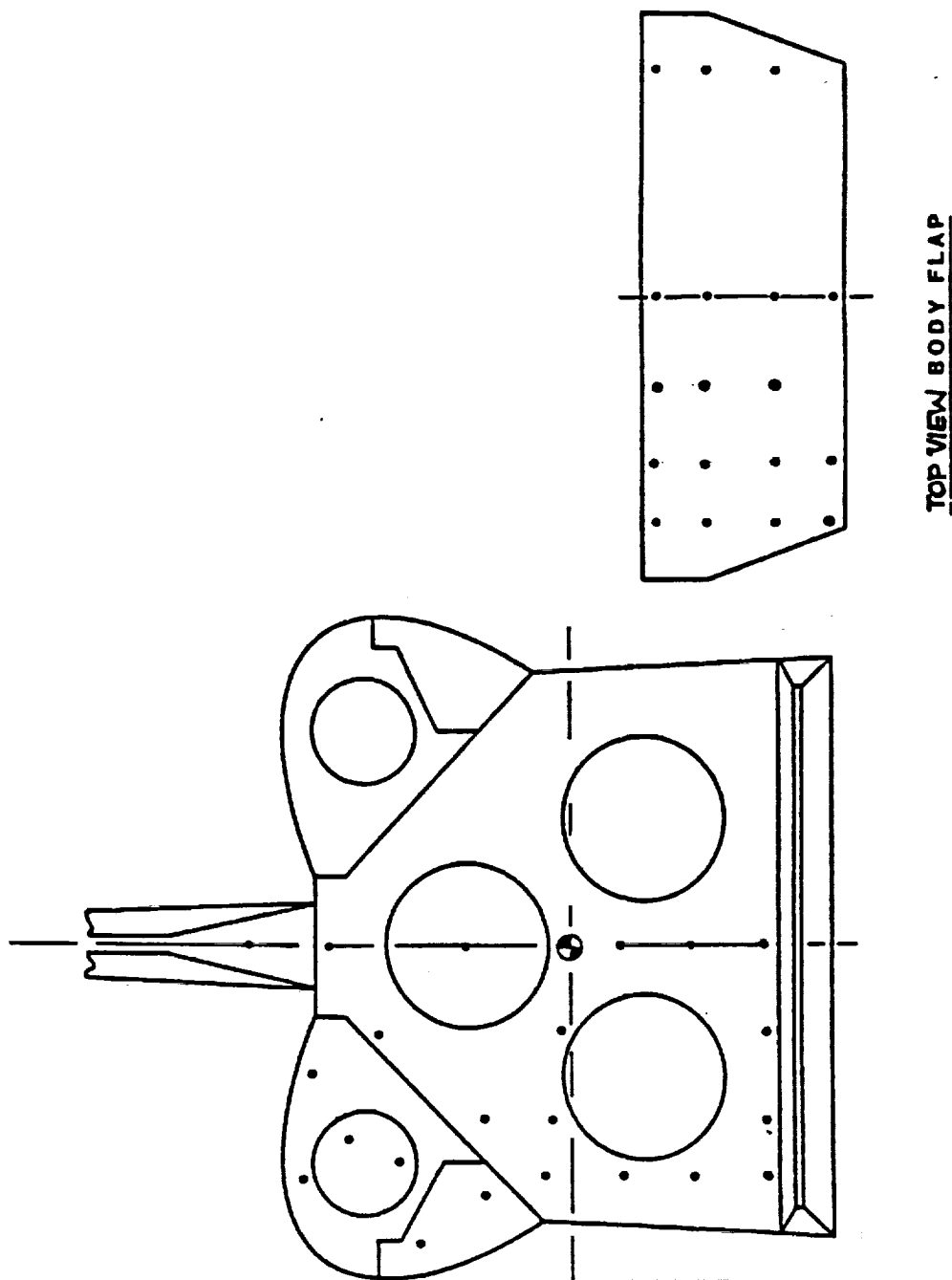


ORBITER BOTTOM VIEW (L.H. Side)

Figure 3 b : Steady State Static Pressure Tap Locations - Orbiter Fuselage Layout

X(O)	X/L	0	20	40	55	60	67.5	70	82	90	105	110	120	135	140	150	151	156	162	165	169	174	180	S
235	0.0000	1																					1	1
245	0.0078	2								3													4	2
265	0.0233	5	6	7	8			9		10			11			12							13	9
295	0.0465	17	18	19	20			21		22			23			24							25	9
325	0.0698	29	30	31	32			33		34			35			36							37	9
380	0.1124	41	42	43	44			45		46			47			48							49	9
385	0.1163									53													1	1
399	0.1271									54														1
440	0.1589																				55			1
450	0.1666	56	57	58	59			60		61			62				63				64		65	10
465	0.1783																69							2
500	0.2054	71	72	73	74			75		76			77	78		79				80			81	11
540	0.2364	85		86	87					88			89			90				91			92	8
565	0.2558	94		95				96		97			98			99				100			101	8
590	0.2751	103		104				105		106			107			108				109			110	8
625	0.3023	112		113				114		115			116			117				118			119	8
690	0.3526	121		122				123		124			125			126				127			128	8
764	0.4100								130														1	1
780	0.4224	131		132				133		134			135			136				137			138	8
905	0.5193								140														1	1
928	0.5371	141		142				143		144			145			146				147			148	8
937	0.5441						150																1	1
994	0.5882																						0	0
1070	0.6471	152		151				154		155			156			157				158			159	8
1129	0.6929								161														1	1
1215	0.7595	162		163				164		165	166		167	168		169				170			171	10
1300	0.8254	173		174				175		176	177		178	179		180							181	9
1318	0.8393							291		292			218	219	220	221				222				7
1350	0.8641												223	224	225	226				227				5
1375	0.8835							185		186	187		188	189		190				191			287	10
1390	0.8951	183		184				193															2	2
1430	0.9261	194		195		293		196		197	198		199	200		201				202			288	11
1455	0.9455					294		295		296										289			290	4
1480	0.9649	204		205		297		206		207	208		209	210		211				212				10
1524	0.9990	409	417	433																				3
1530	1.0036											216	217											2
1548	1.0176	410	418	434																				3
1580	1.0424	411	419	435																				3
1609	1.0649	412	420	436																				3
1613	1.0680																							0
LIB = 1290.3		25	10	23	7	3	1	21	3	24	5	3	22	7	1	20	1	1	1	1	1	1	1	215

Figure 3 c : Steady State Static Pressure Tap Locations - Orbiter Fuselage List



**Figure 3 d ; Steady State Static Pressure Tap Locations - Orbiter Base & Body Flap Layout**

# BASE

TAP #	Zo	Yo	TAP#	Zo	Yo	TAP#	Zo	Yo
301	532	0	311	302	-38	321	522	-103
302	505	0	312	439	-78	322	470	-96
303	443	0	313	410	-78	323	439	-107
304	400	0	314	302	-78	324	465	-130
305	376	0	315	414	-103			
306	340	0	316	376	-103			
307	302	0	317	340	-103			
308	478	-38	318	302	-103			
309	439	-38	319	514	-55			
310	405	-38	320	492	-88			
TOTAL 24								

# BODY- FLAP

$\eta$	$x/C_{BF}$ (BOTTOM)				$x/C_{BF}$ (TOP)				TOTAL 40 TAPS
	-.10	.20	.60	.95	-.10	.20	.60	.95	
.10	401	402	403	404	405	406	407	408	
.20									
.35									
.50	409	410	411	412	413	414	415	416	
.65	417	418	419	420	421	422	423	424	
.80	425	426	427	428	429	430	431	432	
.90	433	434	435	436	437	438	439	440	

Figure 3 e ; Steady State Static Pressure Tap Locations - Orbiter Base & Body Flap List

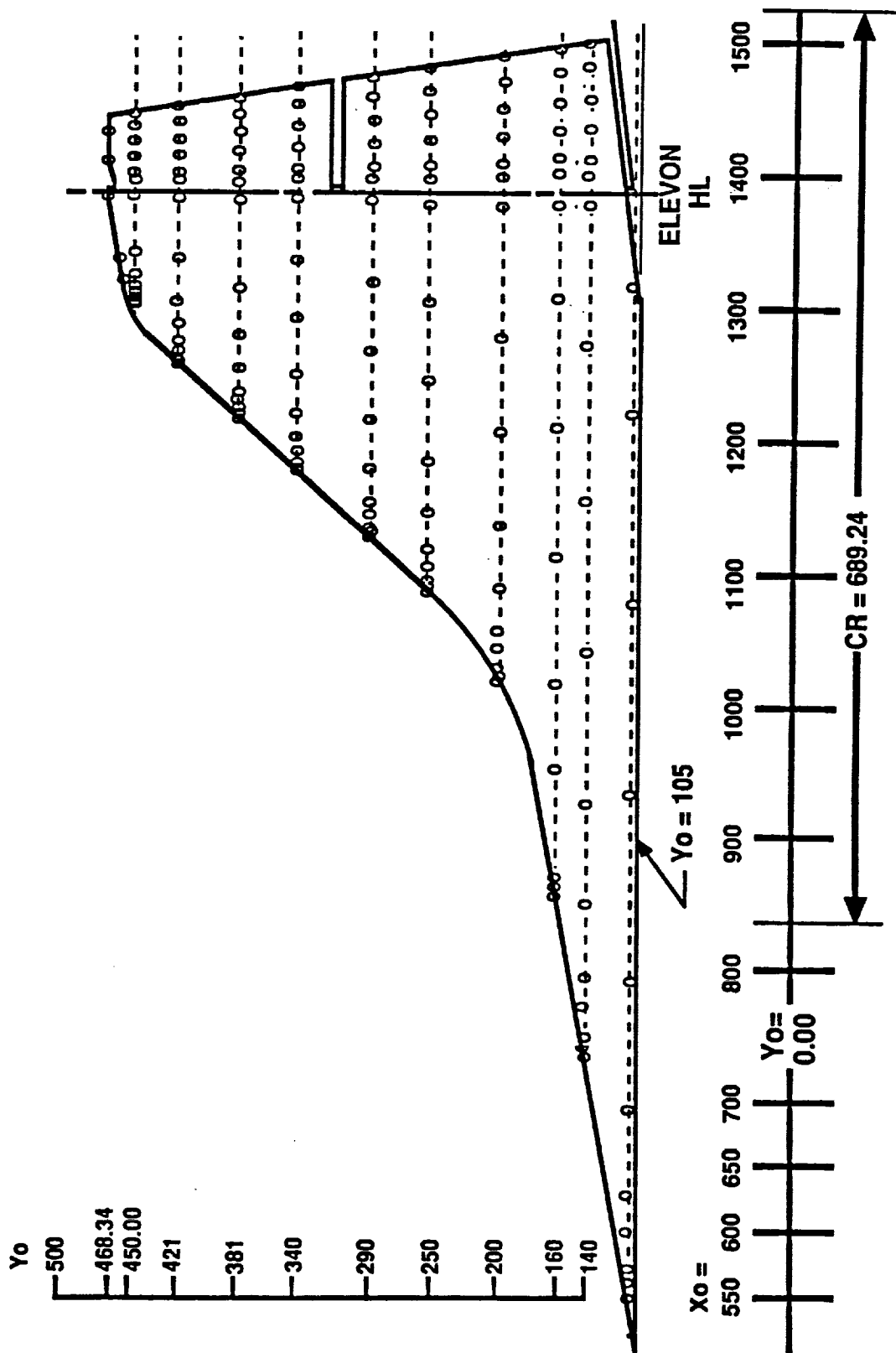


FIGURE 3f: WING - INSTRUMENTATION LAYOUT



WING:	ETA =		X/C																Xo	Xe/Ce								S
	Y(O)	Y/B	0.00	0.01	0.02	0.05	0.08	0.15	0.25	0.40	0.55	0.70	0.80	1.360	-0.10	0.10	0.20	0.40	0.60	0.80	1.00							
TOP	110	0.235	601	602	603	604	605	606	607	608	609	610	611															
BOT				612	613	614	615	616	617	618	619	620	621									21						
TOP	140	0.299	622	623	624	625	626	627	628	629	630	631		632	633	634	635	636	637	638	639							
BOT				640	641	642	643	644	645	646	647	648		649	650	651	652	653	654	655		32						
TOP	160	0.342	656	657	658	659	660	661	662	663	664	665		666	667	668	669	670	671	672	673							
BOT				674	675	676	677	678	679	680	681	682		683	684	685	686	687	688	689		32						
TOP	200	0.427	690	691	692	693	694	695	696	697	698			699	700	701	702	703	704	705	706							
BOT				707	708	709	710	711	712	713	714			715	716	717	718	719	720	721		30						
TOP	250	0.534	722	723	724	725	726	727	728	729	730			731	732	733	734	735	736	737	738							
BOT				739	740	741	742	743	744	745	746			747	748	749	750	751	752	753		30						
TOP	290	0.619	754	755	756	757	758	759	760	761	762			763	764	765	766	767	768	769	770							
BOT				771	772	773	774	775	776	777	778			779	780	781	782	783	784	785		30						
TOP	340	0.726	786	787	788	789	790	791	792	793	794			795	796	797	798	799	800	801	802							
BOT				803	804	805	806	807	808	809	810			811	812	813	814	815	816	817		30						
TOP	380	0.811	818	819	820	821	822	823	824	825				826	827	828	829	830	831	832	833							
BOT				834	835	836	837	838	839	840				841	842	843	844	845	846	847		28						
TOP	420	0.897	848	849	850	851	852	853	854	855				856	857	858	859	860	861	862	863							
BOT				864	865	866	867	868	869	870				871	872	873	874	875	876	877		28						
TOP	450	0.961	878	879	880	881	882	883	884					885	886	887	888	889	890	891	892							
BOT				893	894	895	896	897	898					899	900	901	902	903	904	905		26						
TIP	468	1.000							906	907				908	909		910		911	912	6							

8 - 468 34

293

B = 468.34

Figure 3 g ; Steady State Static Pressure Tap Locations - Wing Instrumentation List

RUDDER  
HINGELINE

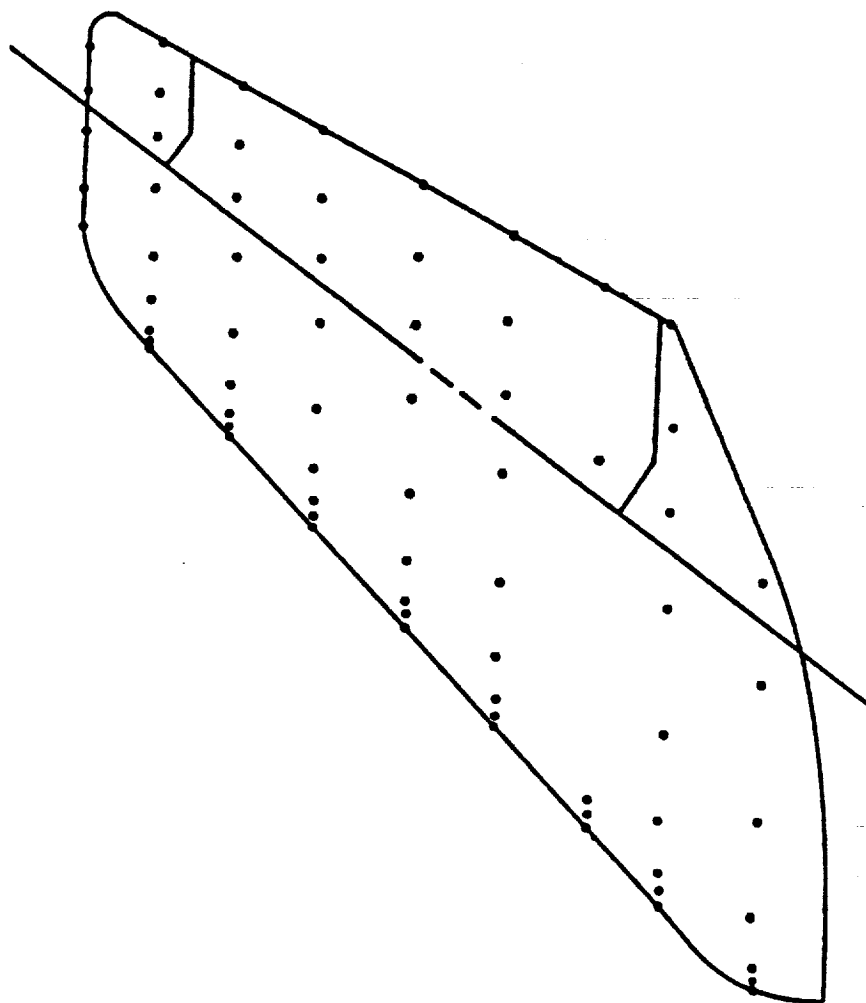


Figure 3 h ; Steady State Static Pressure Tap Locations - Vertical Tail Layout

	Z(O)	ETA = (Z-Zr)/B	X/C												S	
			0.00	0.03	0.06	0.15	0.30	0.52	0.68	0.83	1.00					
FIN	530	0.095	501	502	503	504	505	506	507					7		
"	570	0.222	509	510	511	512	513	514	515	516	517			9		
"	600	0.317	518	519	520	521	522	523	524	525	526			9		
"	640	0.444	527	528	529	530	531	532	533	534	535			9		
"	680	0.570	536	537	538	539	540	541	542	543	544			9		
"	720	0.697	545	546	547	548	549	550	551	552	553			9		
"	755	0.808	554	555	556	557	558	559	560	561	562			9		
"	790	0.919	563	564	565	566	567	568	569	570	571			9		
TIP:	815.6	1.000				572	573	574	575	576				5		
B = 315.6															S	75

Figure 3 I ; Steady State Static Pressure Tap Locations - Vertical Tail List

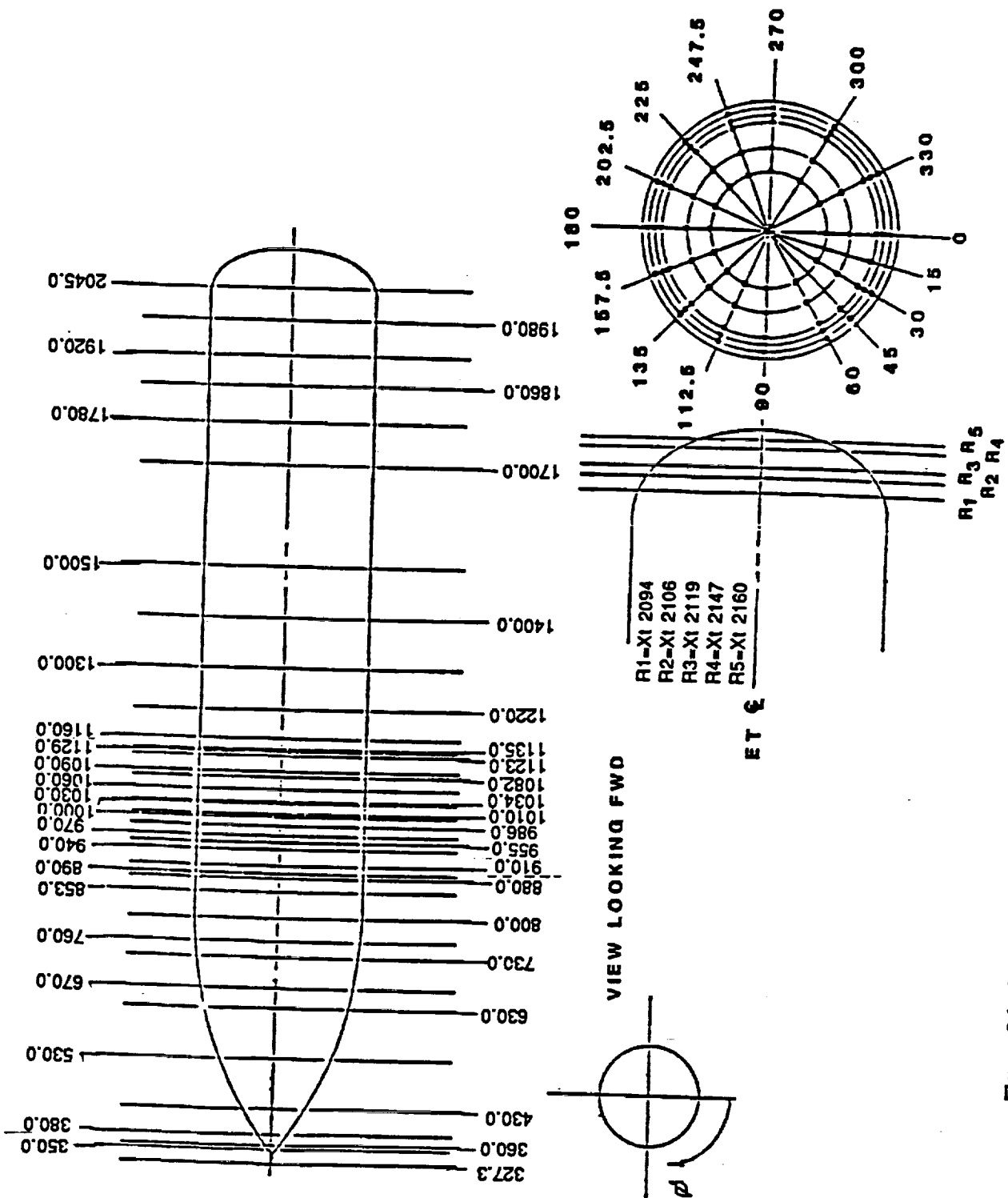
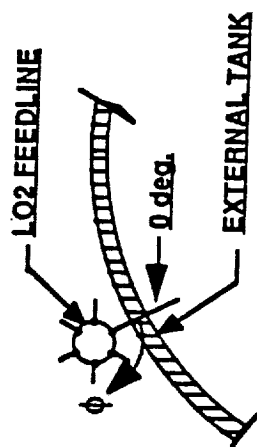


Figure 3 J ; Steady State Static Pressure Tap Locations - External Tank Layout

X(1)	0	2.5	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
350	0.015	1008		1007		1008		1009		1010		1011		1012		1013		1014		1015		1016
360	0.020	1014		1015		1016		1017		1018		1019		1020		1021		1022		1023		1024
X(1)	0	2.5	15	30	45	60	75	90	105	120	135	150	165	180	195	210	225	240	255	270	285	300
380	0.031	1018		1019		1020		1021		1022		1023		1024		1025		1026		1027		1028
390	0.036	1023		1024		1025		1026		1027		1028		1029		1030		1031		1032		1033
400	0.041	1028		1029		1030		1031		1032		1033		1034		1035		1036		1037		1038
410	0.046	1033		1034		1035		1036		1037		1038		1039		1040		1041		1042		1043
420	0.051	1038		1039		1040		1041		1042		1043		1044		1045		1046		1047		1048
430	0.056	1043		1044		1045		1046		1047		1048		1049		1050		1051		1052		1053
440	0.061	1048		1049		1050		1051		1052		1053		1054		1055		1056		1057		1058
450	0.066	1053		1054		1055		1056		1057		1058		1059		1060		1061		1062		1063
460	0.071	1058		1059		1060		1061		1062		1063		1064		1065		1066		1067		1068
470	0.076	1063		1064		1065		1066		1067		1068		1069		1070		1071		1072		1073
480	0.081	1068		1069		1070		1071		1072		1073		1074		1075		1076		1077		1078
490	0.086	1073		1074		1075		1076		1077		1078		1079		1080		1081		1082		1083
500	0.091	1078		1079		1080		1081		1082		1083		1084		1085		1086		1087		1088
510	0.096	1083		1084		1085		1086		1087		1088		1089		1090		1091		1092		1093
520	0.101	1088		1089		1090		1091		1092		1093		1094		1095		1096		1097		1098
530	0.106	1093		1094		1095		1096		1097		1098		1099		1100		1101		1102		1103
540	0.111	1098		1099		1100		1101		1102		1103		1104		1105		1106		1107		1108
550	0.116	1103		1104		1105		1106		1107		1108		1109		1110		1111		1112		1113
560	0.121	1108		1109		1110		1111		1112		1113		1114		1115		1116		1117		1118
570	0.126	1113		1114		1115		1116		1117		1118		1119		1120		1121		1122		1123
580	0.131	1118		1119		1120		1121		1122		1123		1124		1125		1126		1127		1128
590	0.136	1123		1124		1125		1126		1127		1128		1129		1130		1131		1132		1133
600	0.141	1128		1129		1130		1131		1132		1133		1134		1135		1136		1137		1138
610	0.146	1133		1134		1135		1136		1137		1138		1139		1140		1141		1142		1143
620	0.151	1138		1139		1140		1141		1142		1143		1144		1145		1146		1147		1148
630	0.156	1143		1144		1145		1146		1147		1148		1149		1150		1151		1152		1153
640	0.161	1148		1149		1150		1151		1152		1153		1154		1155		1156		1157		1158
650	0.166	1153		1154		1155		1156		1157		1158		1159		1160		1161		1162		1163
660	0.171	1158		1159		1160		1161		1162		1163		1164		1165		1166		1167		1168
670	0.176	1163		1164		1165		1166		1167		1168		1169		1170		1171		1172		1173
680	0.181	1168		1169		1170		1171		1172		1173		1174		1175		1176		1177		1178
690	0.186	1173		1174		1175		1176		1177		1178		1179		1180		1181		1182		1183
700	0.191	1178		1179		1180		1181		1182		1183		1184		1185		1186		1187		1188
710	0.196	1183		1184		1185		1186		1187		1188		1189		1190		1191		1192		1193
720	0.201	1188		1189		1190		1191		1192		1193		1194		1195		1196		1197		1198
730	0.206	1193		1194		1195		1196		1197		1198		1199		1200		1201		1202		1203
740	0.211	1198		1199		1200		1201		1202		1203		1204		1205		1206		1207		1208
750	0.216	1203		1204		1205		1206		1207		1208		1209		1210		1211		1212		1213
760	0.221	1208		1209		1210		1211		1212		1213		1214		1215		1216		1217		1218
770	0.226	1213		1214		1215		1216		1217		1218		1219		1220		1221		1222		1223
780	0.231	1218		1219		1220		1221		1222		1223		1224		1225		1226		1227		1228
790	0.236	1223		1224		1225		1226		1227		1228		1229		1230		1231		1232		1233
800	0.241	1228		1229		1230		1231		1232		1233		1234		1235		1236		1237		1238
810	0.246	1233		1234		1235		1236		1237		1238		1239		1240		1241		1242		1243
820	0.251	1238		1239		1240		1241		1242		1243		1244		1245		1246		1247		1248
830	0.256	1243		1244		1245		1246		1247		1248		1249		1250		1251		1252		1253
840	0.261	1248		1249		1250		1251		1252		1253		1254		1255		1256		1257		1258
850	0.266	1253		1254		1255		1256		1257		1258		1259		1260		1261		1262		1263
860	0.271	1258		1259		1260		1261		1262		1263		1264		1265		1266		1267		1268
870	0.276	1263		1264		1265		1266		1267		1268		1269		1270		1271		1272		1273
880	0.281	1268		1269		1270		1271		1272		1273		1274		1275		1276		1277		1278
890	0.286	1273		1274		1275		1276		1277		1278		1279		1280		1281		1282		1283
900	0.291	1278		1279		1280		1281		1282		1283		1284		1285		1286		1287		1288
910	0.296	1283		1284		1285		1286		1287		1288		1289		1290		1291		1292		1293
920	0.301	1288		1289		1290		1291		1292		1293		1294		1295		1296		1297		1298
930	0.306	1293		1294		1295		1296		1297		1298		1299		1300		1301		1302		1303
940	0.311	1298		1299		1300		1301		1302		1303		1304		1305		1306		1307		1308
950	0.316	1303		1304		1305		1306		1307		1308		1309		1310		1311		1312		1313
960	0.321	1308		1309		1310		1311		1312		1313		1314		1315		1316		1317		1318
970	0.326	1313		1314		1315		1316		1317		1318		1319		1320		1321		1322		1323
980	0.331	1318		1319		1320		1321		1322		1323		1324		1325		1326		1327		1328
990	0.336	1323		1324		1325		1326		1327		1328		1329		1330		1331		1332		1333
1000	0.341	1328		1329		1330		1331		1332		1333		1334		1335		1336		1337		1338
1010	0.346	1333		1334		1335		1336		1337		1338		1339		1340		1341		1342		1343
1020	0.351	1338		1339		1340		1341		1342		1343		1344		1345		1346		1347		1348
1030	0.356	1343		1344		1345		1346		1347		1348		1349		1350		1351		1352		1353
1040	0.361	1348		1349		1350		1351		1352		1353		1354		1355		1356		1357		1358
1050	0.366	1353		1354		1355		1356		1357		1358		1359		1360		1361		1362		1363
1060	0.371	1358		1359		1360		1361		1362		1363		1364		1365		1366		1367		1368
1070	0.376	1363		1364		1365		1366		1367		1368		1369		1370		1371		1372		1373
1080	0.381	1368		1369		1370		1371		1372		1373		1374		1375		1376		1377		1378
1090	0.386	1373		1374		1375		1376		1377		1378		1379		1380		1381		1382		1383
1100	0.391	1378		1379		1380		1381		1382		1383										

**Figure 3 k : Steady State Static Pressure Tap Locations - External Tank List**

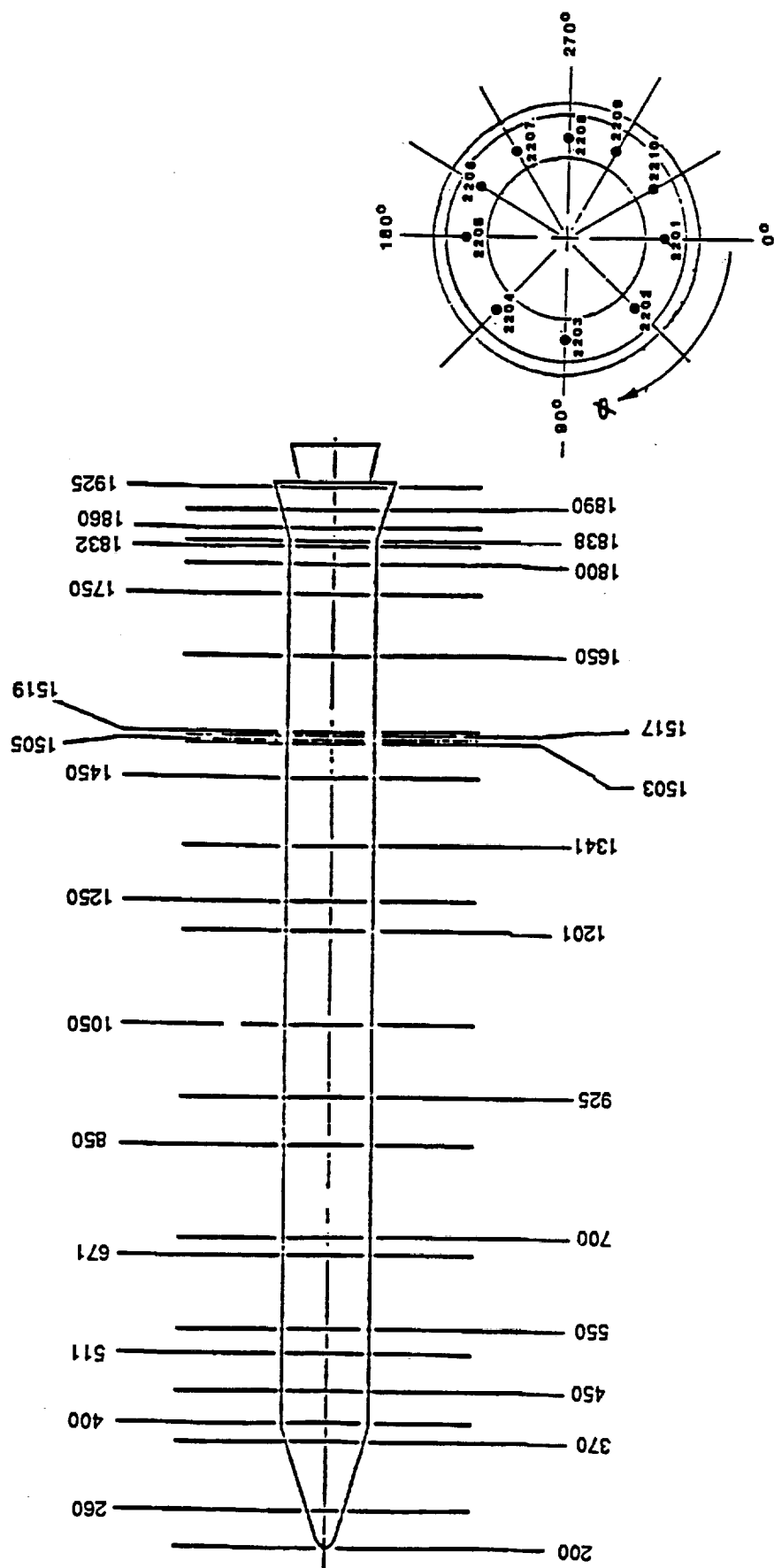


TOTAL 60 TAPS

TYPICAL CROSSECTION  
(View Looking Aft)

E.T. STA. XT - Inches	$\phi$ - degrees					
	0	60	120	180	240	300
1100	1786	1787	1782	1783	1784	1785
1200	1792	1793	1788	1789	1790	1791
1300	1798	1799	1794	1795	1796	1797
1400	1804	1805	1800	1801	1802	1803
1500	1810	1811	1806	1807	1808	1809
1600	1816	1817	1812	1813	1814	1815
1700	1822	1823	1818	1819	1820	1821
1800	1828	1829	1824	1825	1826	1827
1900	1834	1835	1830	1831	1832	1833
2000	1840	1841	1836	1837	1838	1837

Figure 30 : EXTERNAL TANK LO2 FEEDLINE INSTRUMENTATION



$\phi \sim \text{degrees}$

X(0)	X/L	0	45	86	90	94	135	180	225	247.5	270	292.5	315	360	s
200	0.000	2001												2001	1
260	0.035	2002					2005	2006	2007		2008		2009	2002	8
370	0.098	2010	2011		2004		2013	2014	2015		2016		2017	2010	8
400	0.116	2018	2019		2020		2021	2022	2023		2024		2025	2018	8
450	0.144	2026	2027				2028	2029	2030		2031		2032	2026	7
511	0.180			2033	2306	2034									3
550	0.202	2035	2036				2037	2038	2039		2040		2041	2035	7
671	0.272			2042	2308	2043									3
700	0.289	2044	2045				2046	2047	2048		2049		2050	2044	7
850	0.376	2051	2052				2053	2054	2055		2056		2057	2051	7
926	0.420			2058	2310	2059									3
1050	0.491	2060	2061	2062	2311	2063	2064	2065	2066		2067		2068	2060	10
1201	0.578			2069	2312	2070									3
1250	0.607	2071	2072				2073	2074	2075		2076		2077	2071	7
1341	0.659			2078	2313	2079									3
1450	0.722	2080	2081				2082	2083	2084		2085		2086	2080	7
1503	0.753	2087	2088	2089	2314	2090	2091	2092	2093		2094		2095	2087	10
1505	0.754	2096	2097				2098	2099	2100		2101			2096	6
1517	0.761	2103	2104				2105	2106	2107		2108		2109	2103	7
1519	0.762					2110									1
1650	0.838	2111	2112	2113	2328	2114	2115	2116	2117		2118		2119	2111	10
1750	0.896	2120	2121				2122	2123	2124		2125		2126	2120	7
1800	0.925	2127	2128	2129	2330	2130	2131	2132	2133		2134		2135	2127	10
1832	0.943	2136	2137				2138	2139	2140		2141		2142	2136	7
1838	0.946	2143	2144				2145	2146	2147		2148		2149	2143	7
1860	0.959	2150	2151		2152		2153	2154	2155	2156	2157	2158	2159	2150	10
1890	0.977	2160	2161		2162		2163	2164	2165	2166	2167	2168	2169	2160	10
1925	0.997	2170	2171		2172		2173	2174	2175	2176	2177	2178	2179	2170	10
1930.6	1.000														0
L(S) = 1730.6		22	21	9	15	10	21	21	21	3	21	3	20	22	187

Figure 3 n : Steady State Static Pressure Tap Locations - Solid Rocket Booster List

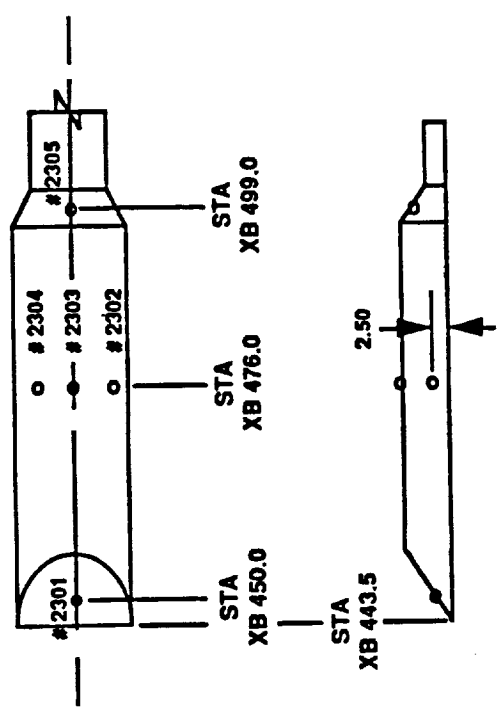


**CENTER SECTION - SYSTEMS TUNNEL (13 TAPS)**

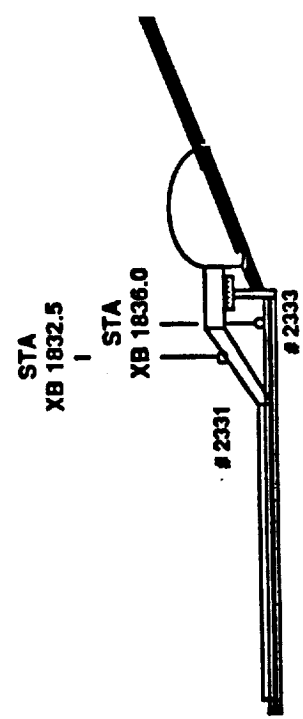
EACH TAP LOCATED ON TOP CENTERLINE @ THE FOLLOWING:

STATION	TAP NO.
XB 511	2306
XB 561	2307
XB 671	2308
XB 811	2309
XB 926	2310
XB 1051	2311
XB 1201	2312
XB 1341	2313
XB 1503	2314
XB 1591	2327
XB 1650	2328
XB 1726	2329
XB 1800	2330

**FORWARD FAIRING - SYSTEMS TUNNEL (5 TAPS)**



**AFT FAIRING - SYSTEMS TUNNEL (2 TAPS)**



**TOTAL 20 TAPS**

Figure 3 o ; Steady State Static Pressure Tap Locations - SRB Systems Tunnel

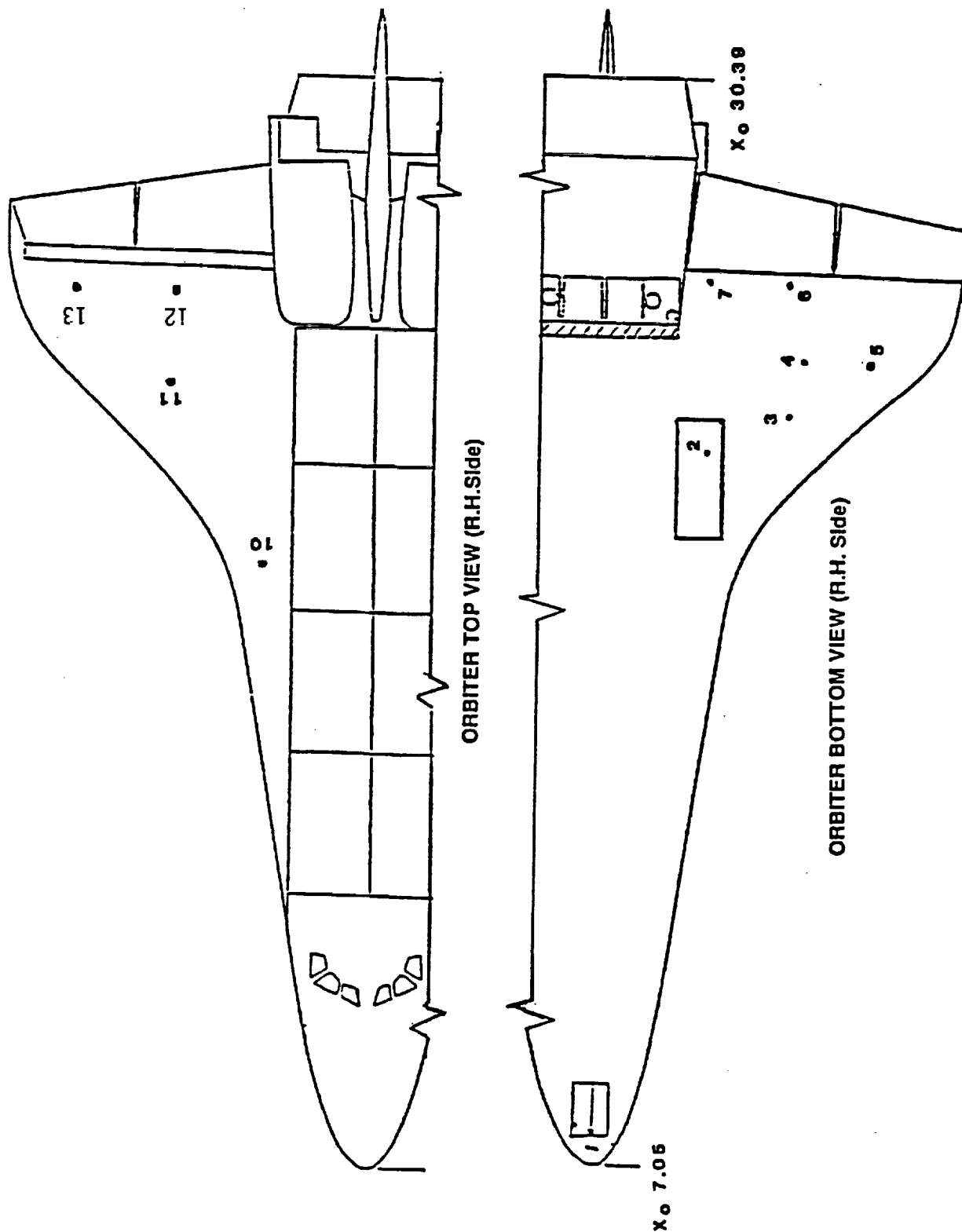


Figure 4 a ; Dynamic (KULITE) Pressure Tap Locallons - Orbiter Fuselage Layout

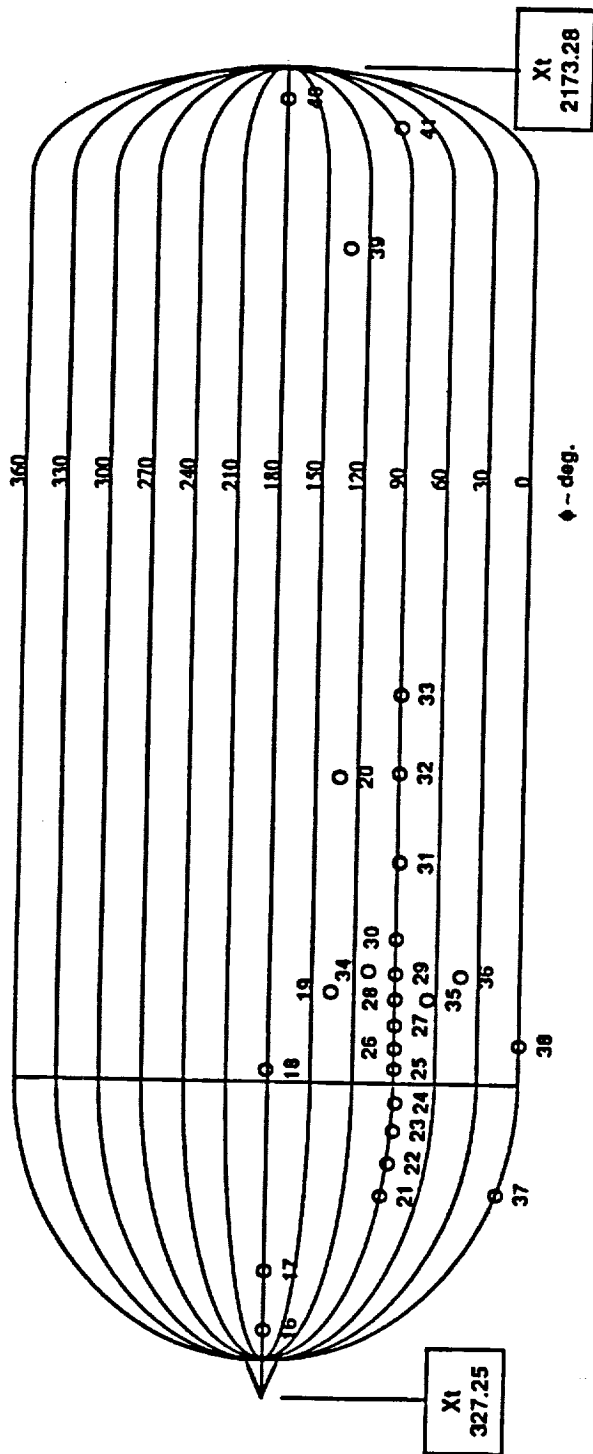
# ORBITER KULITE LOCATIONS

ORBITER STATIONS			(MSID)	KULITE #
Xo	Yo	Zo		
279	0	BOT	1	1
1150	-150	BOT	35	2
1200	-250	BOT	39	3
1280	-250	BOT	53	4
1280	-370	BOT	55	5
1370	-150	BOT	58	6
1370	-250	BOT	60	7
540	-105*	380 ln.	87	8
600	-105*	380 ln.	96	9
1000	-140	TOP	114	10
1220	-260	TOP	116	11
1340	-260	TOP	118	12
1340	-380	TOP	119	13
785	-105*	386 ln.	144	14
380	- 75*	360 ln.	151	15

\* - Fus. Side

TOTAL 15 KULITES

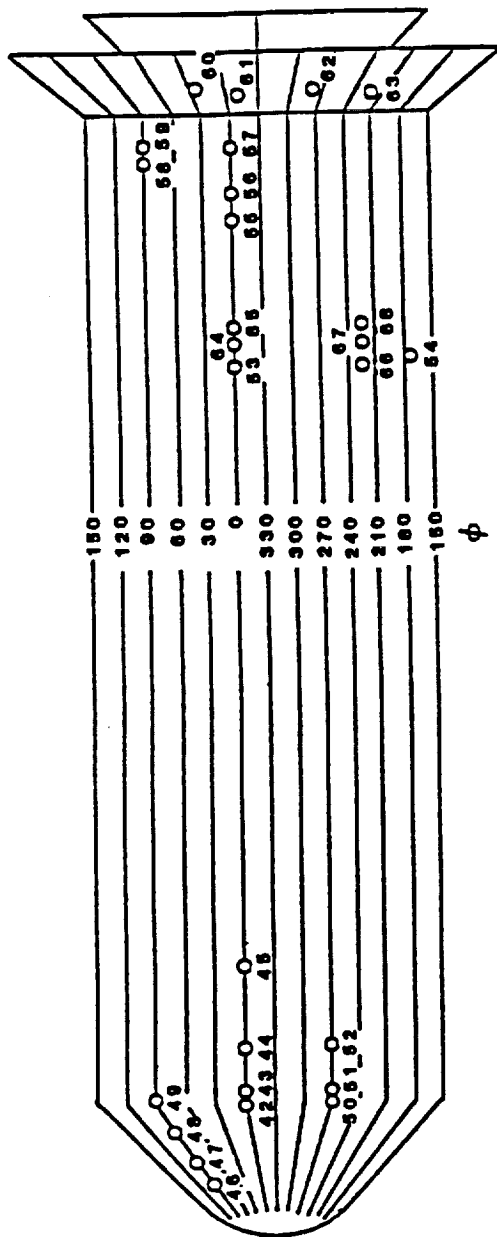
FIGURE 4b : ORBITER KULITE INSTRUMENTATION LOCATIONS



E.T. STA. $X_t$	$\phi$ Deg.	Kulite No.	(MSID)	E.T. STA. $X_t$	$\phi$ Deg.	Kulite No.	(MSID)
371	180	16	(2)	940	92	29	(33)
500	180	17	(4)	955	88.5	30	(34)
820	180	18	(8)	1060	92	31	(35)
940	137	19	(21)	1140	90	32	(36)
1146	135	20	(22)	1220	92	33	(37)
660	90	21	(25)	940	110	34	(38)
700	90	22	(26)	940	68	35	(39)
740	90	23	(27)	940	45	36	(40)
780	90	24	(28)	660	0	37	(41)
820	90	25	(29)	820	0	38	(43)
860	90	26	(30)	1863	135	39	(59)
900	92	27	(31)	2150	180	40	(61)
920	92	28	(32)	2050	90	41	(63)

TOTAL 26 KULITES

Figure 4c ; External Tank Kulite Locations



φ = 0 IS SRB BOTTOM

SRB STA. Xs	φ Deg.	Kulte No.	MSID	SRB STA. Xs	φ Deg.	Kulte No.	MSID
400	0	42	(1)	1770	0	56R&A	(16)
425	0	43	(2)	1825	0	57R&A	(18)
490	0	44R&A	(3)	1790	90	58R&A	(19)
600	0	45R&A	(4)	1825	90	59R&A	(20)
280	90	46	(6)	1882	90	60	(21)
317	90	47	(7)	1865	352	61	(23)
360	90	48	(8)	1882	285	62	(24)
406	90	49	(9)	1853	225	63	(25)
400	270	50	(10)	1535	>0	64R&A	(26)
425	270	51	(11)	1550	<0	65R&A	(27)
500	270	52R&A	(12)	1485	225	66R&A	(28)
1485	0	53R&A	(13)	1535	>225	67R&A	(29)
1500	171	54R&A	(14)	1550	<225	68R&A	(30)
1730	0	55R&A	(15)	TOTAL 27 KULITES			

Note : R&A Indicate Kulites on both the RSRM and ASRM  
Interchangeable shells

Figure 4 d : Solid Rocket Booster KULITE LOCATIONS

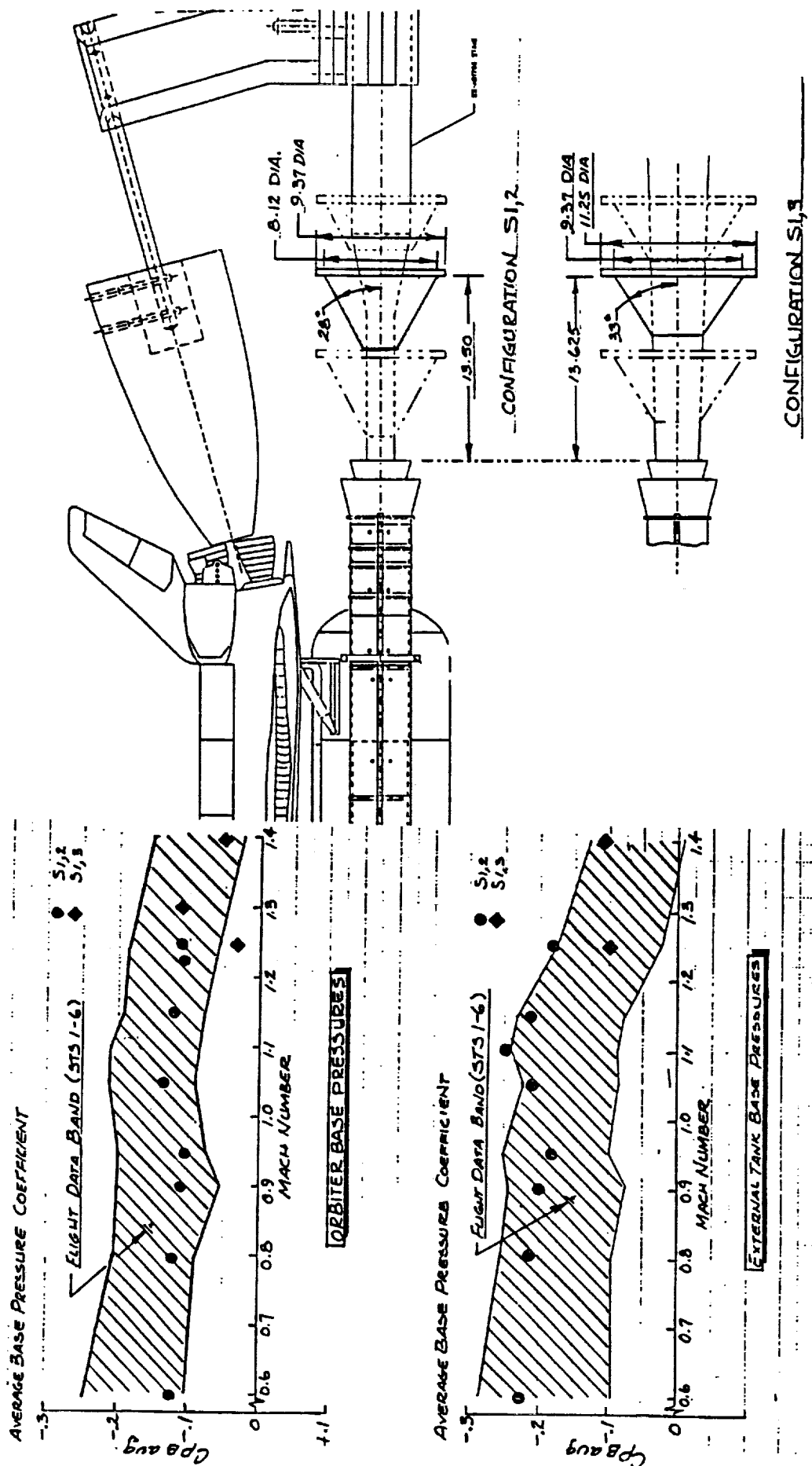


Figure 5 ; Selected Solid Plume Configuration & Base Pressure Match

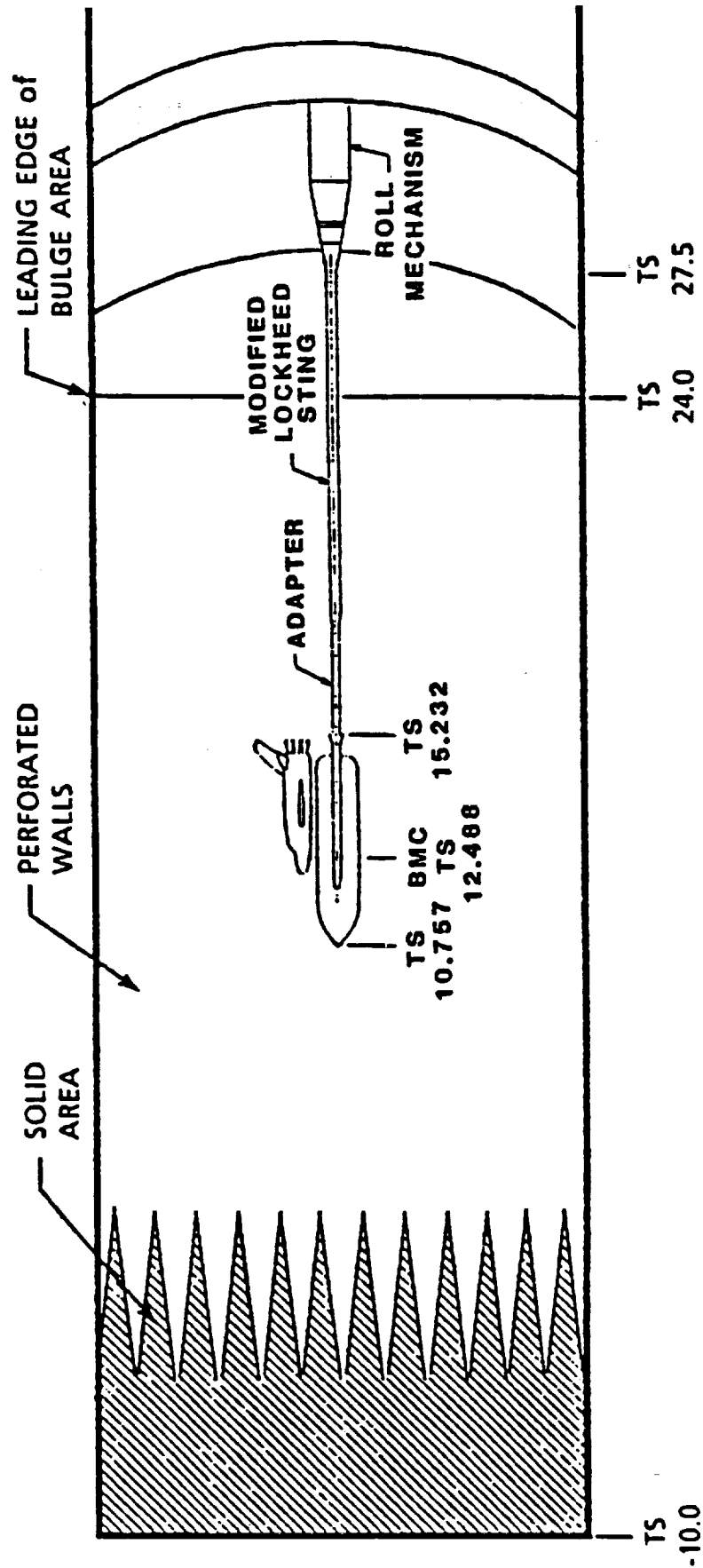


Figure 6 ; Model Installation In the AEDC 16'T Wind Tunnel



Figure 7 a: Model Installation - 3/4 Top Fwd. View--ASRM Configuration + Solid Plume



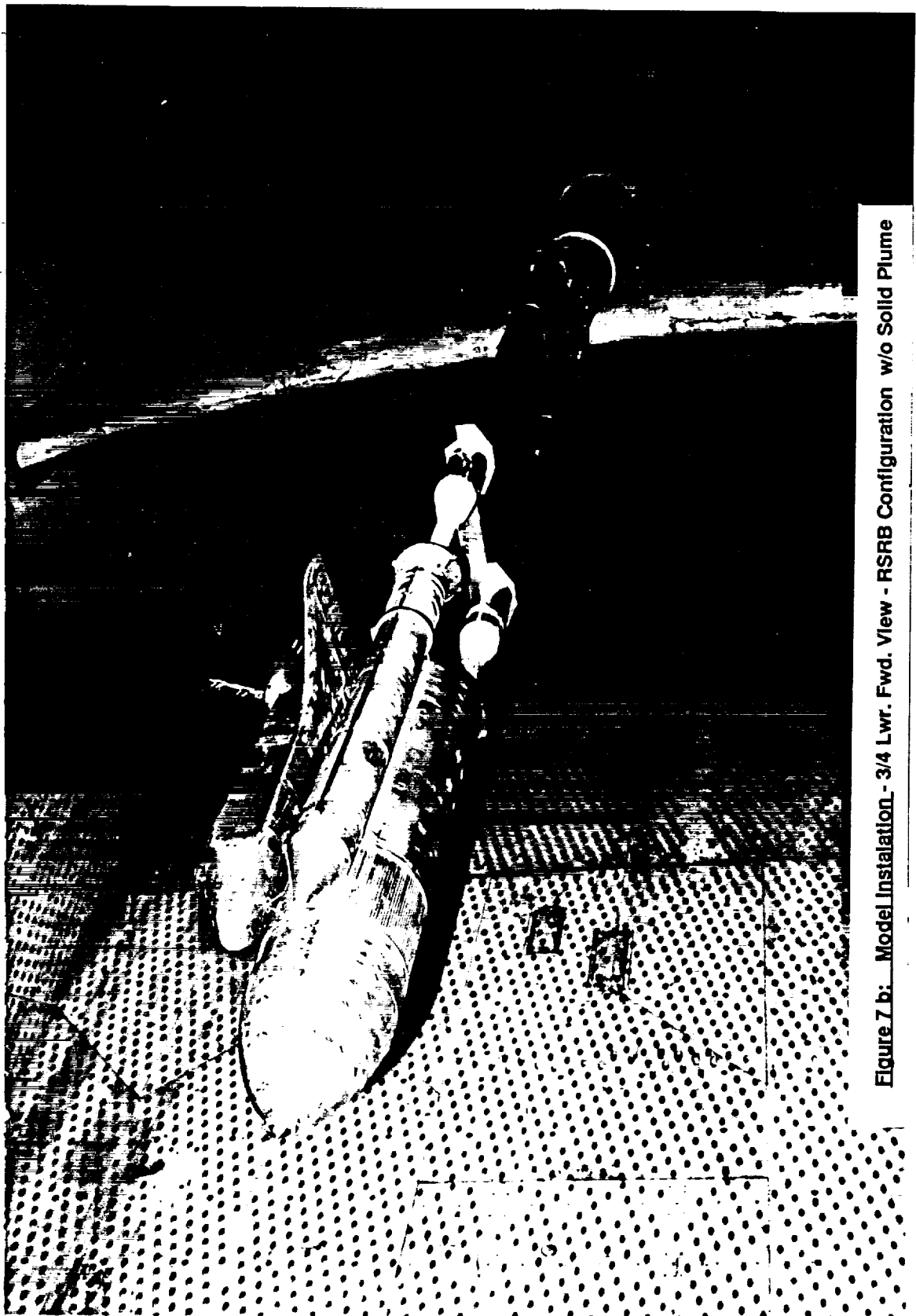


Figure 7 b: Model Installation - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume

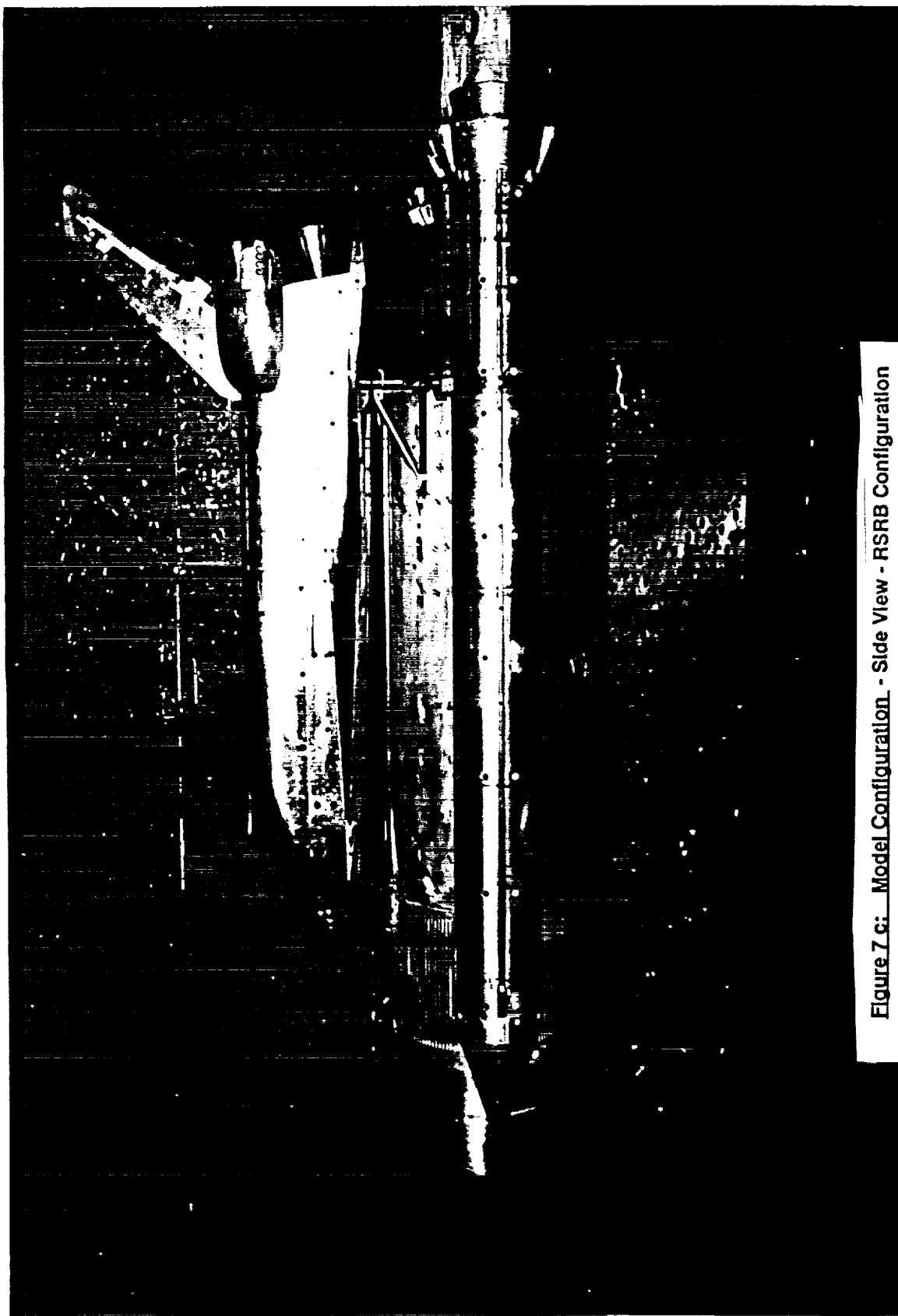


Figure 7 c: Model Configuration - Side View - RSRB Configuration

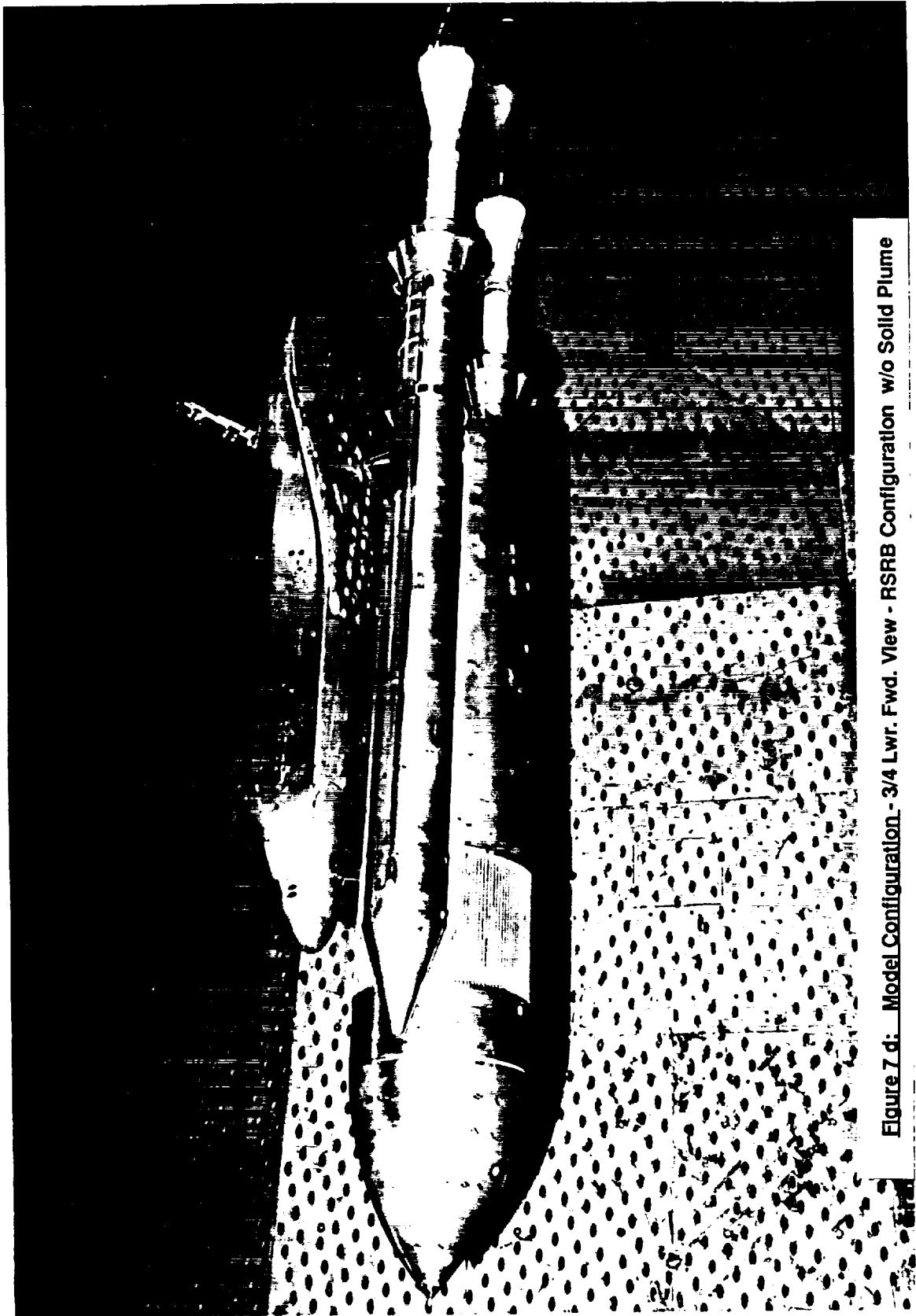


Figure 7 d: Model Configuration - 3/4 Lwr. Fwd. View - RSRB Configuration w/o Solid Plume



Figure 7 e: Model Configuration - Side View - ASRM Configuration

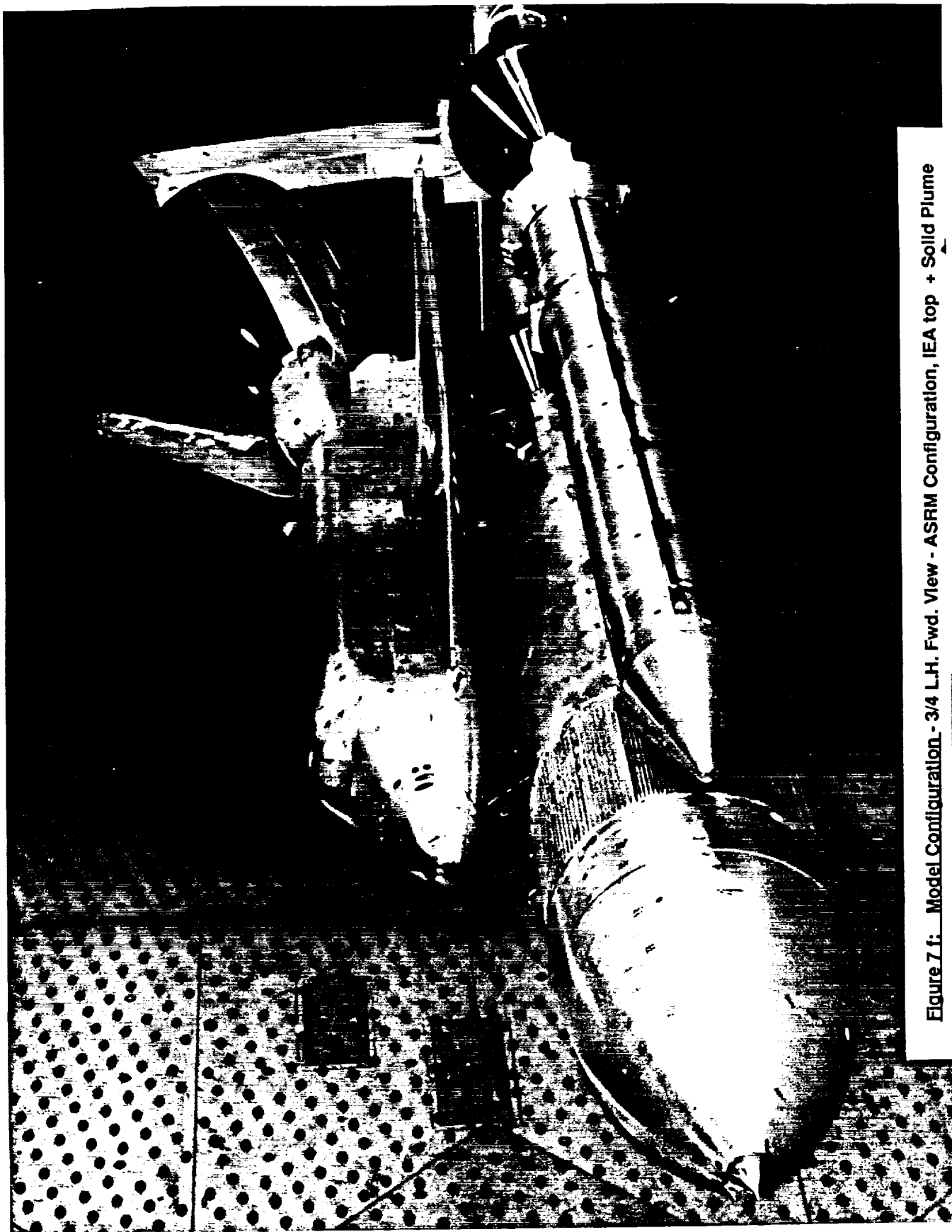


Figure 7 f: Model Configuration - 3/4 L.H. Fwd. View - ASRM Configuration, IEA top + Solid Plume

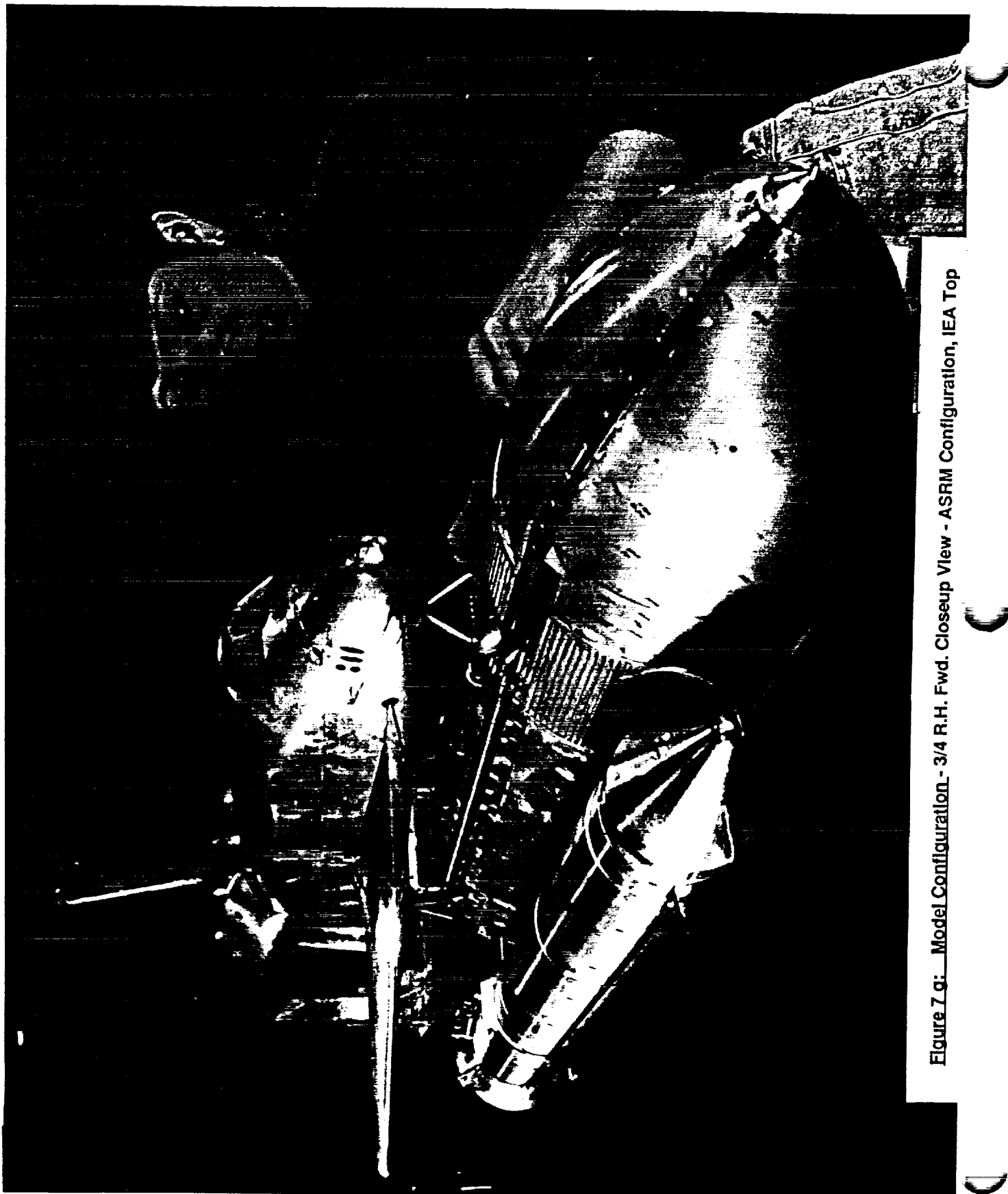


Figure 7 g: Model Configuration - 3/4 R.H. Fwd. Closeup View - ASRM Configuration, IEA Top



Figure 7 h: Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Bottom w/o Solid Plume

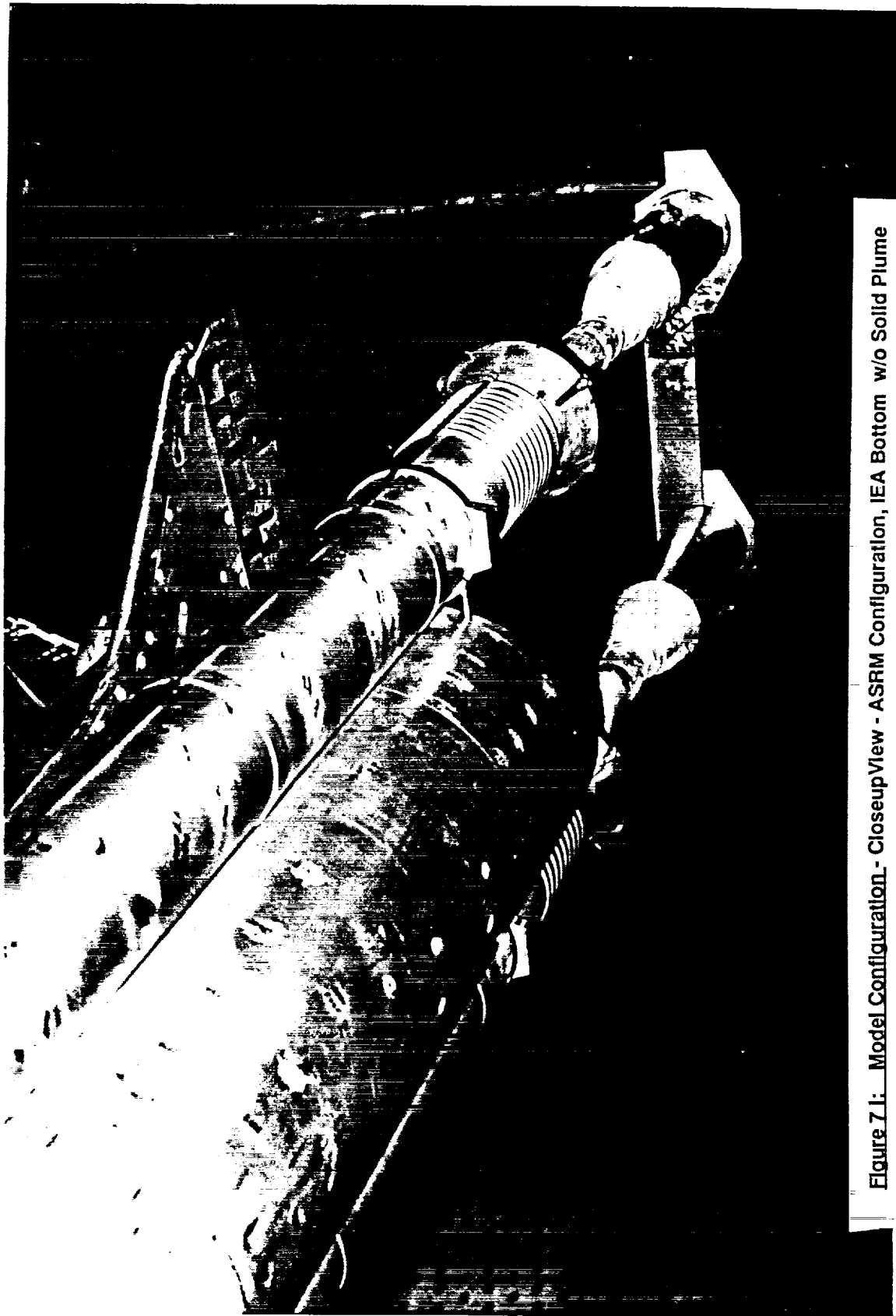


Figure 7 I: Model Configuration - CloseupView - ASRM Configuration, IEA Bottom w/o Solid Plume



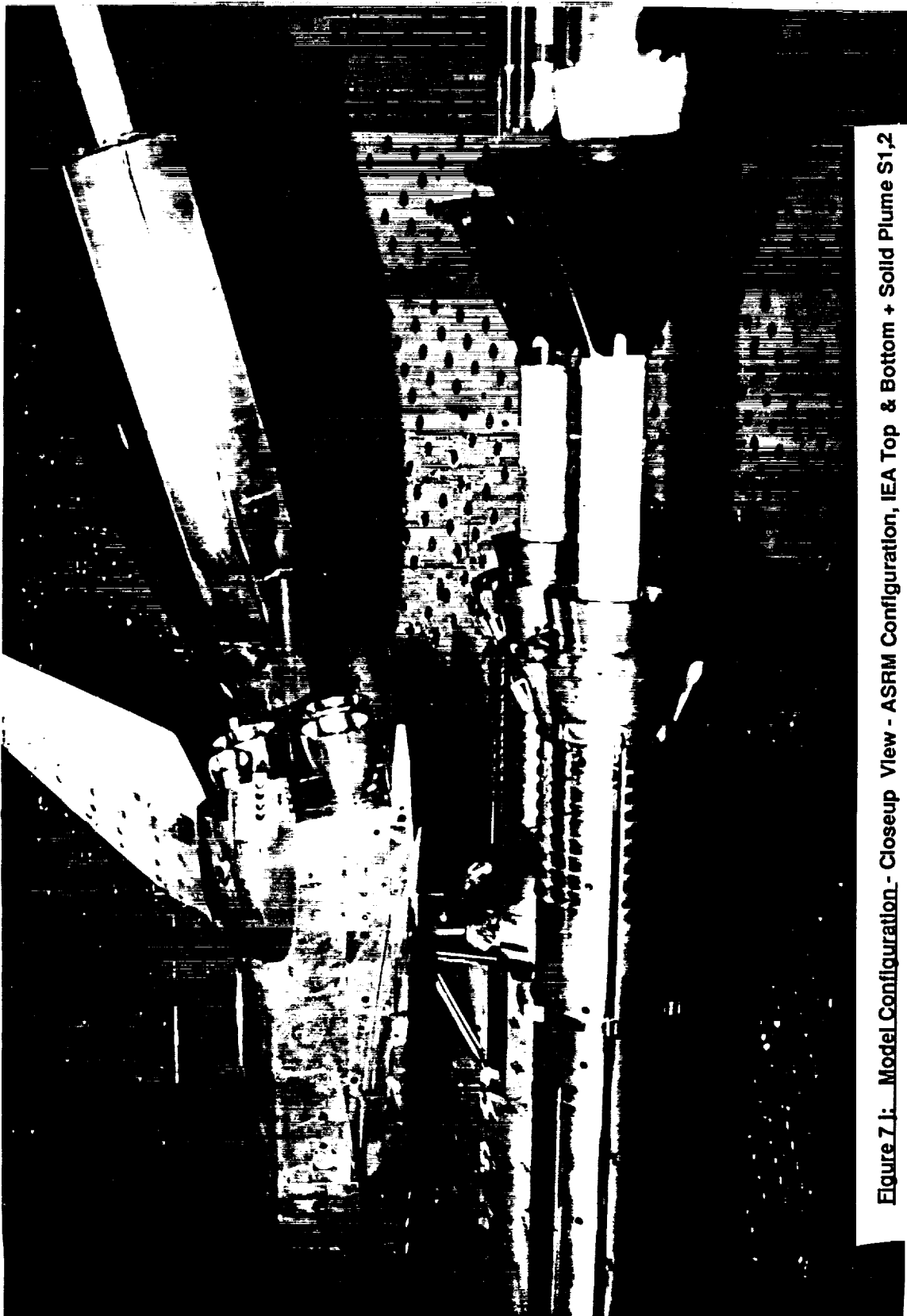


Figure 7 j: Model Configuration - Closeup View - ASRM Configuration, IEA Top & Bottom + Solid Plume S1,2

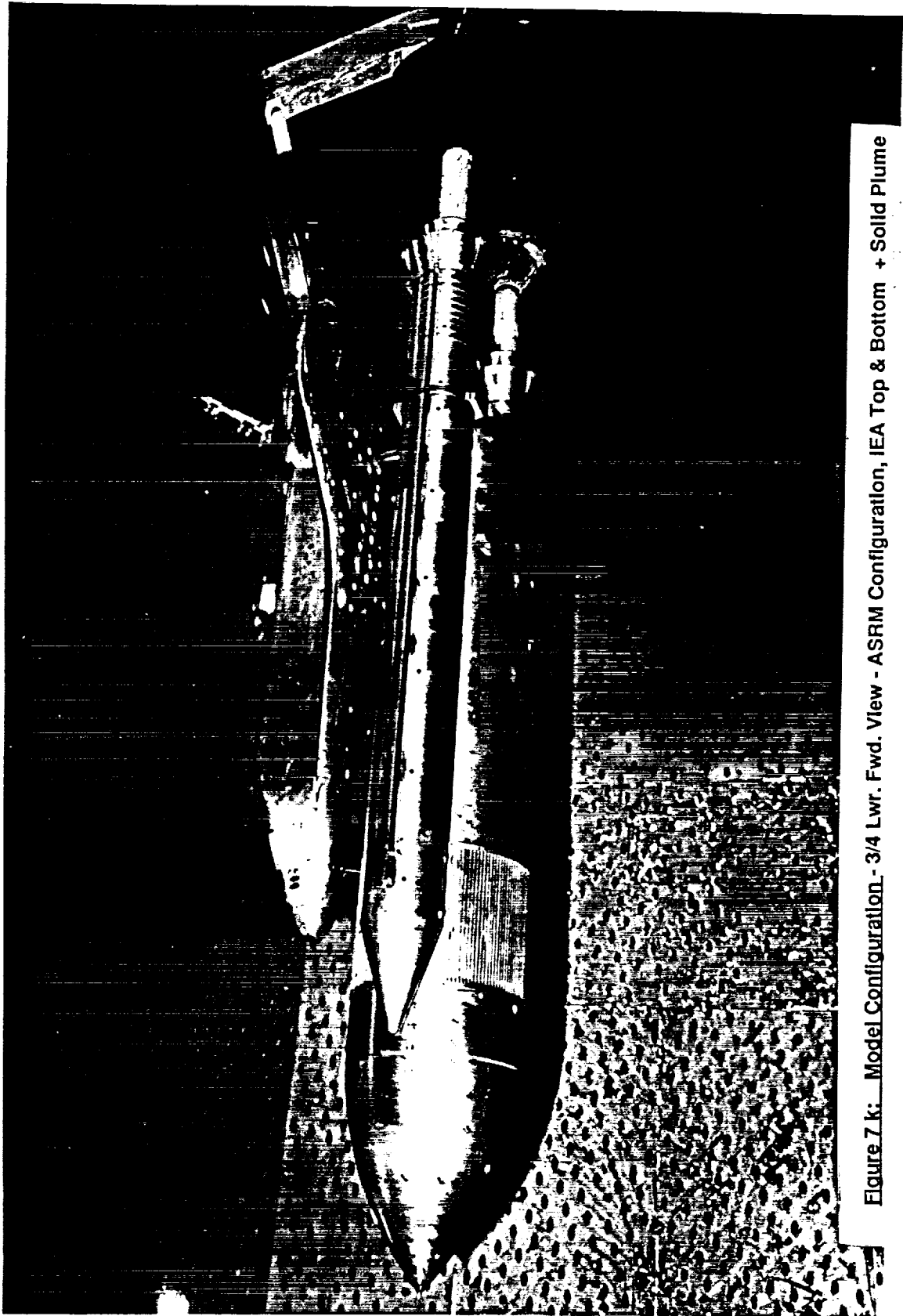


Figure 7 k: Model Configuration - 3/4 Lwr. Fwd. View - ASRM Configuration, IEA Top & Bottom + Solid Plume

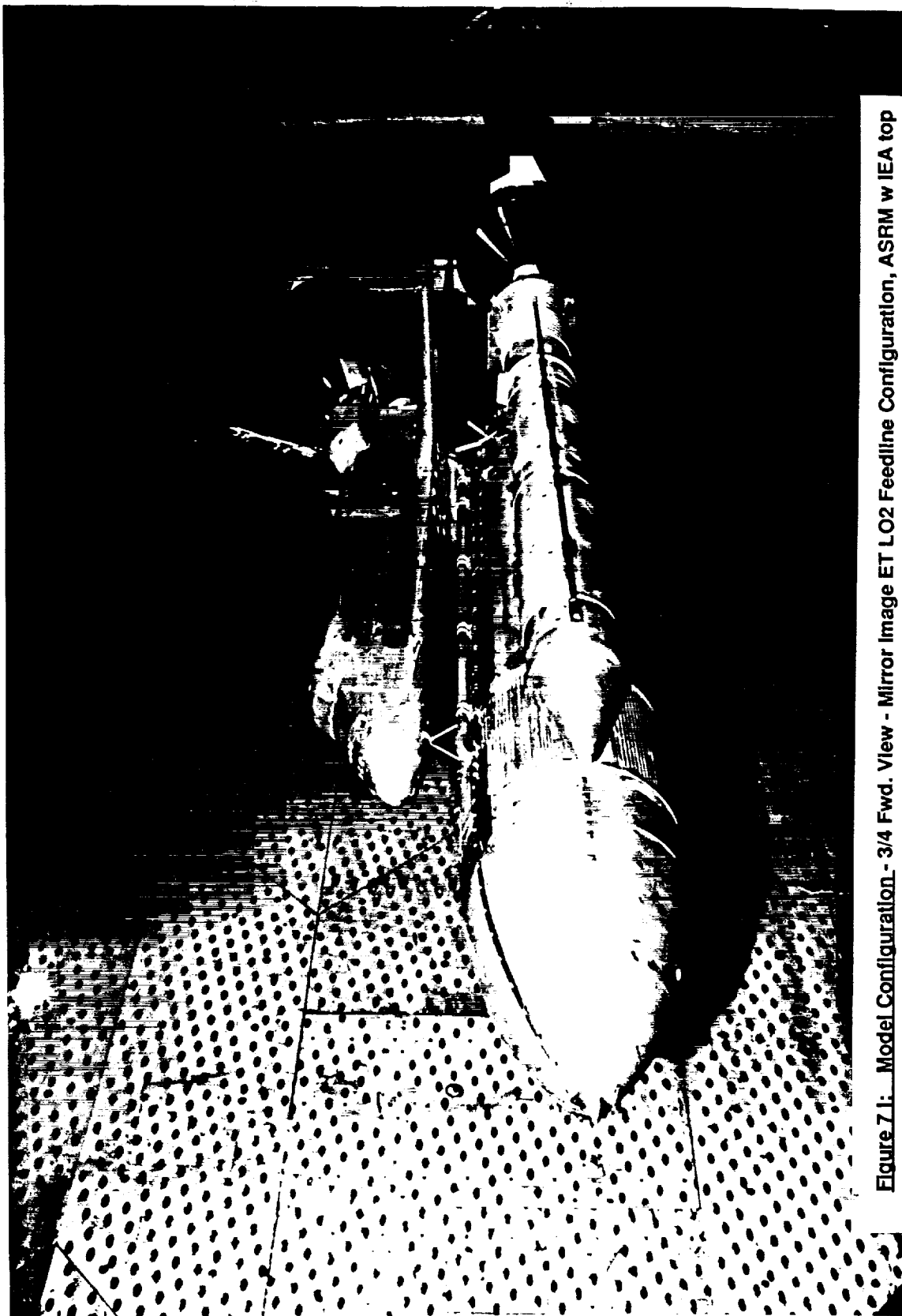


Figure 7.1: Model Configuration - 3/4 Fwd. View - Mirror Image ET LO2 Feedline Configuration, ASRM w IEA top

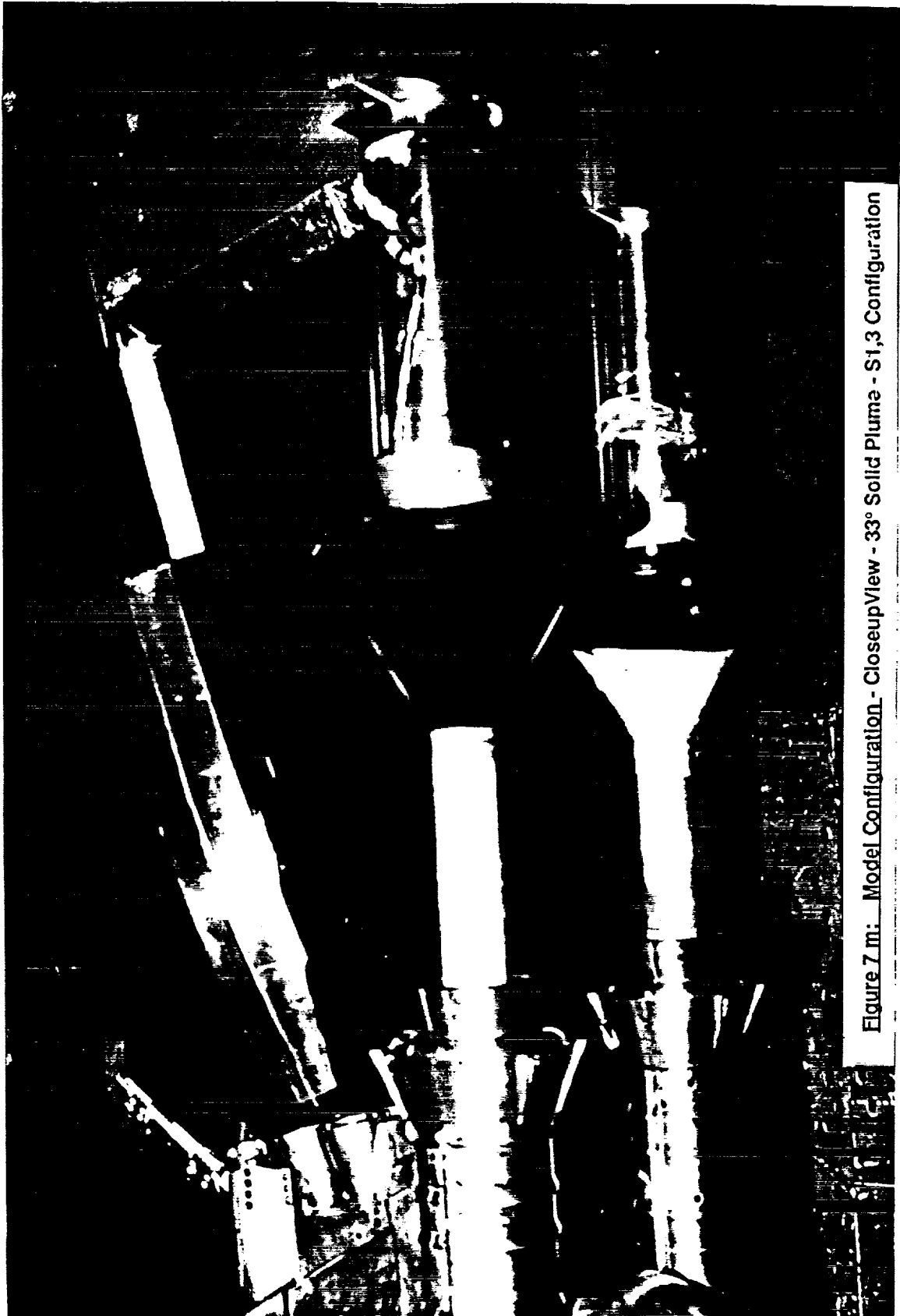


Figure 7 m: Model Configuration - Closeup View - 33° Solid Plume - S1,3 Configuration

## DATA FIGURES

(PRESSURE)



DATA SET	SYMBOL	CONF'GURATION	DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOB151)	□	IA613A-B/L	OT+HSRM+PLUMES SI.2 -ORB. FUSE. & OHS	.600	.000	10.000	9.000
(RCOB152)	□	IA613A-B/L	OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	.600	.000	10.000	9.000
(RCOB80)	□	IA613A-B/L	OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	.600	180.000	10.000	9.000
(RCOB81)	△	IA613A-B/L	OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	.600	999.000	10.000	5.000

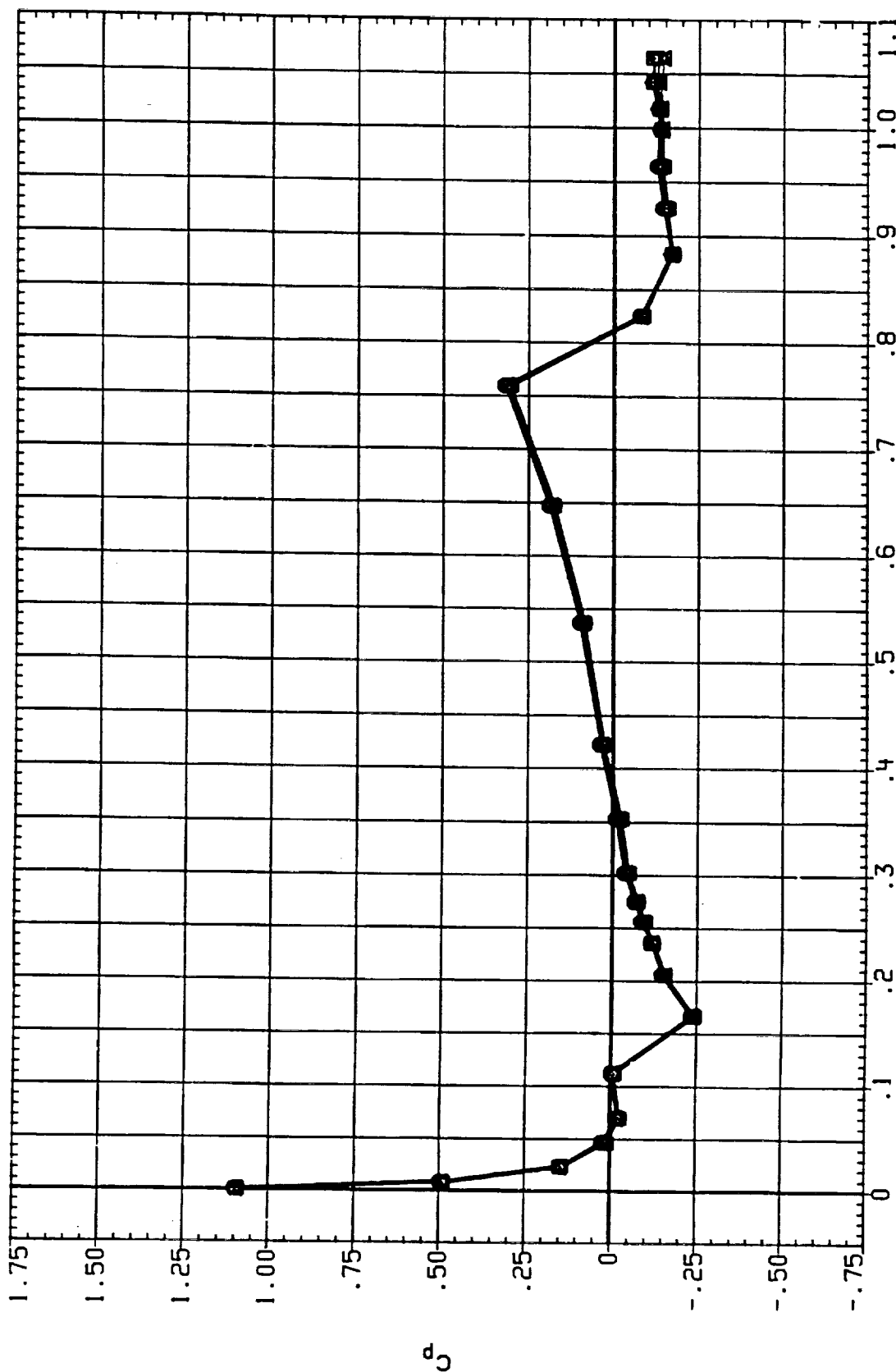


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0815)	○	IA613A,B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OHS	.600	.000	10.000	9.000
(RC0812)	○	IA613A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.600	.000	10.000	9.000
(RC0880)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.600	180.000	10.000	9.000
(RC08C1)	△	IA613A,B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.600	999.000	10.000	5.000

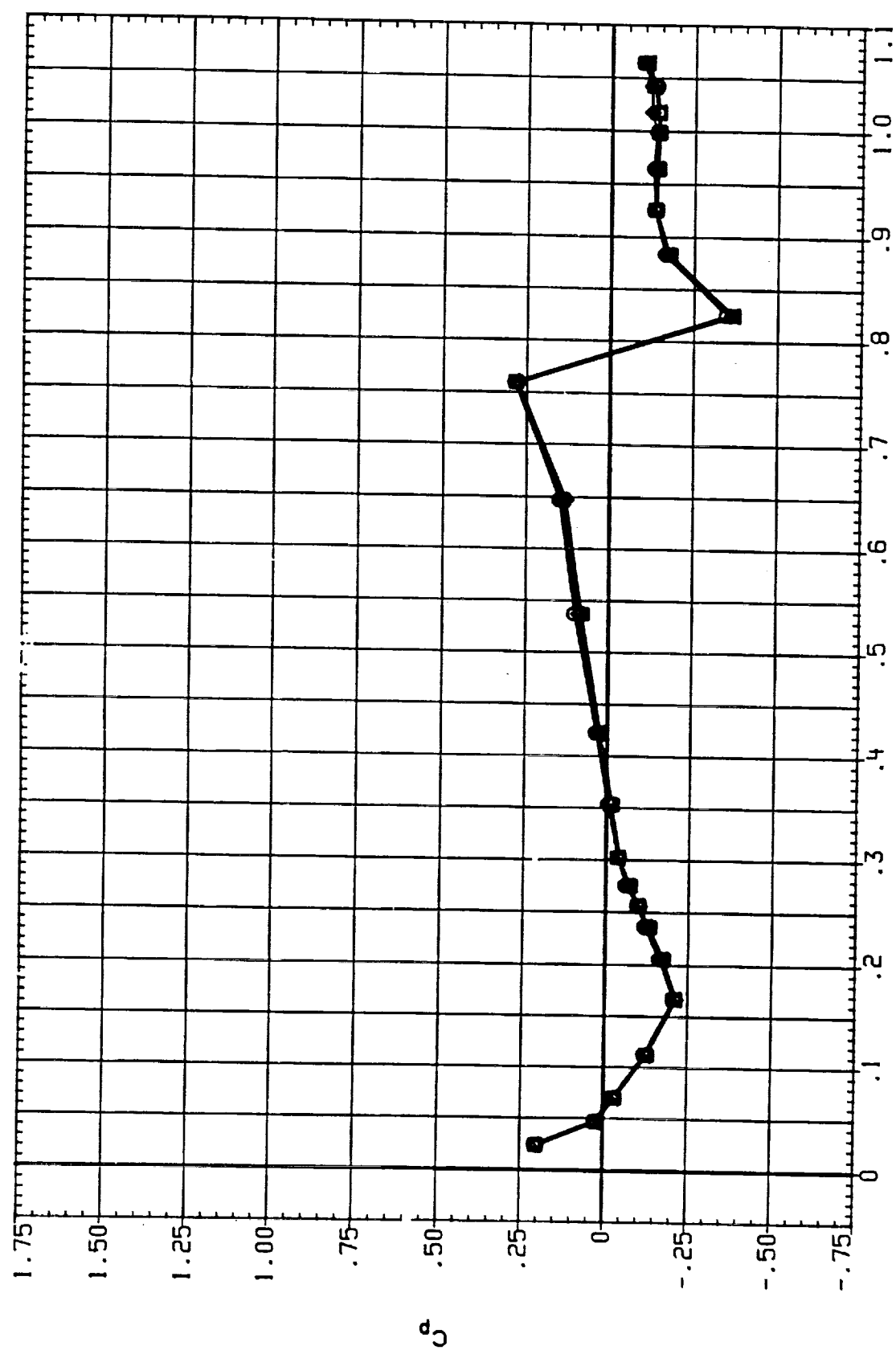


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = 40.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0816)	□	IA613A.B/L OT+RSRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0813)	□	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0881)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	180.000	10.000	9.000

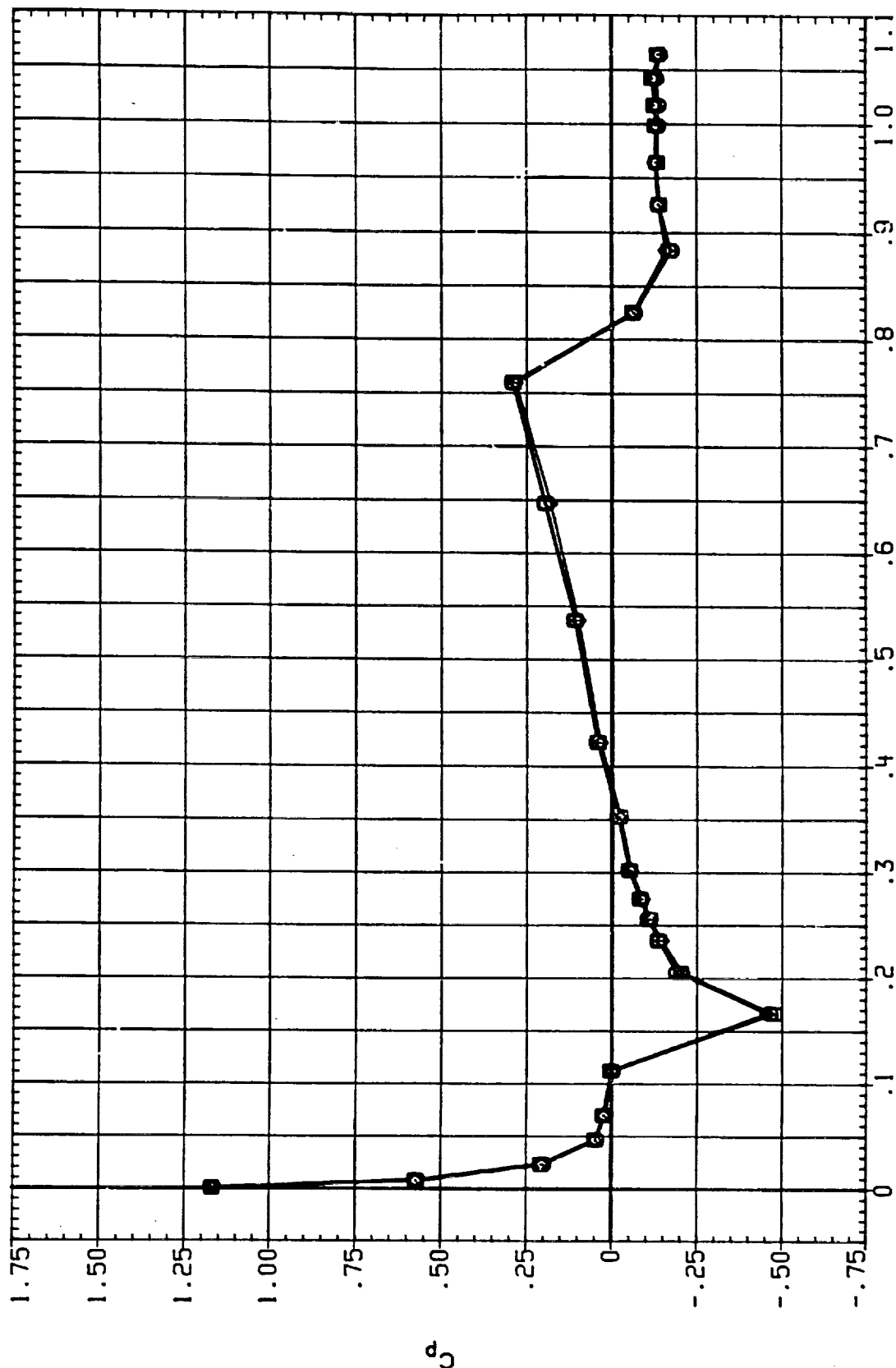


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RC0316)	○	1A613A.B/L OT+PSRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0843)	□	1A613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	.000	10.000	9.000
(RC0881)	◇	1A613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OHS	.800	180.000	10.000	9.000

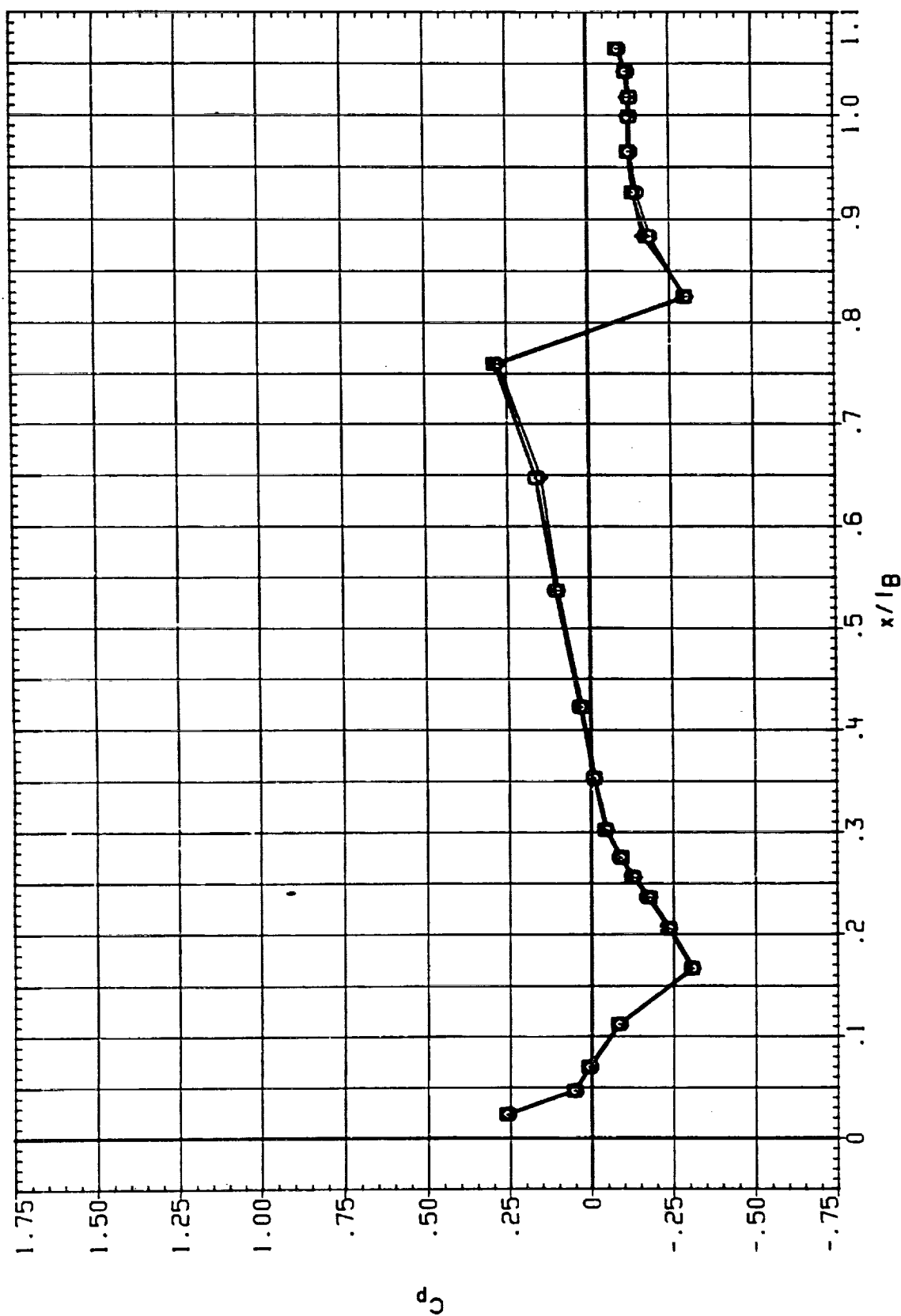


FIGURE 1 1A613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0817)	□	IA613A, B/L OT+RSRH+PLUMES S1.2 -ORB. FUSE. 1 OMS	.900	.000	10.000	9.000
(RC0844)	□	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. 1 OMS	.900	.000	10.000	9.000
(RC0882)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. 1 OMS	.900	180.000	10.000	9.000
(RC08C2)	△	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. 1 OMS	.900	999.000	10.000	5.000

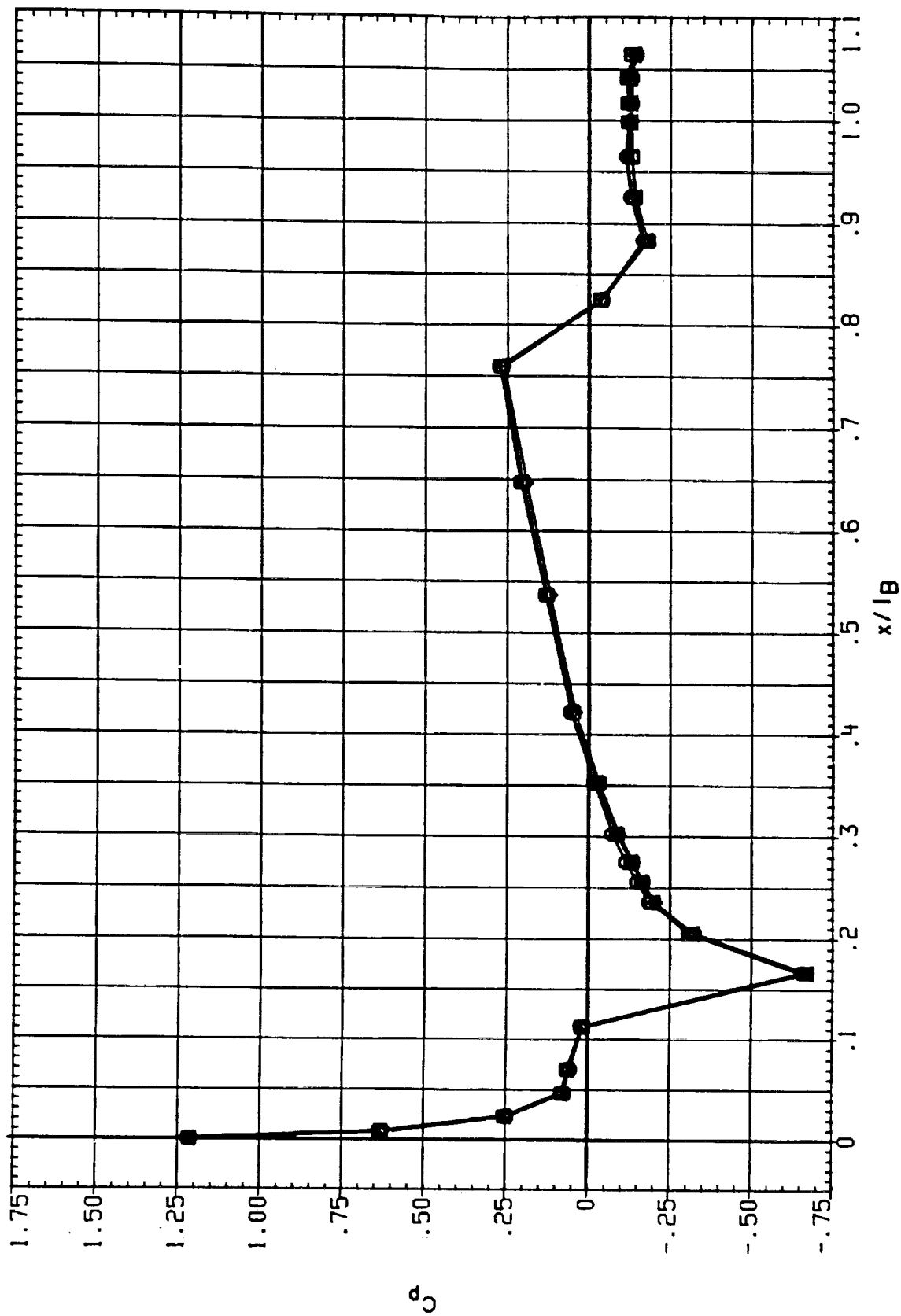


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0817)	○	IA613A, B/L OT+RSRH+PLUMES S1.2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC0844)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	.900	.000	10.000	9.000
(RC0882)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	.900	180.000	10.000	9.000
(RC08C2)	△	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	.900	939.000	10.000	5.000

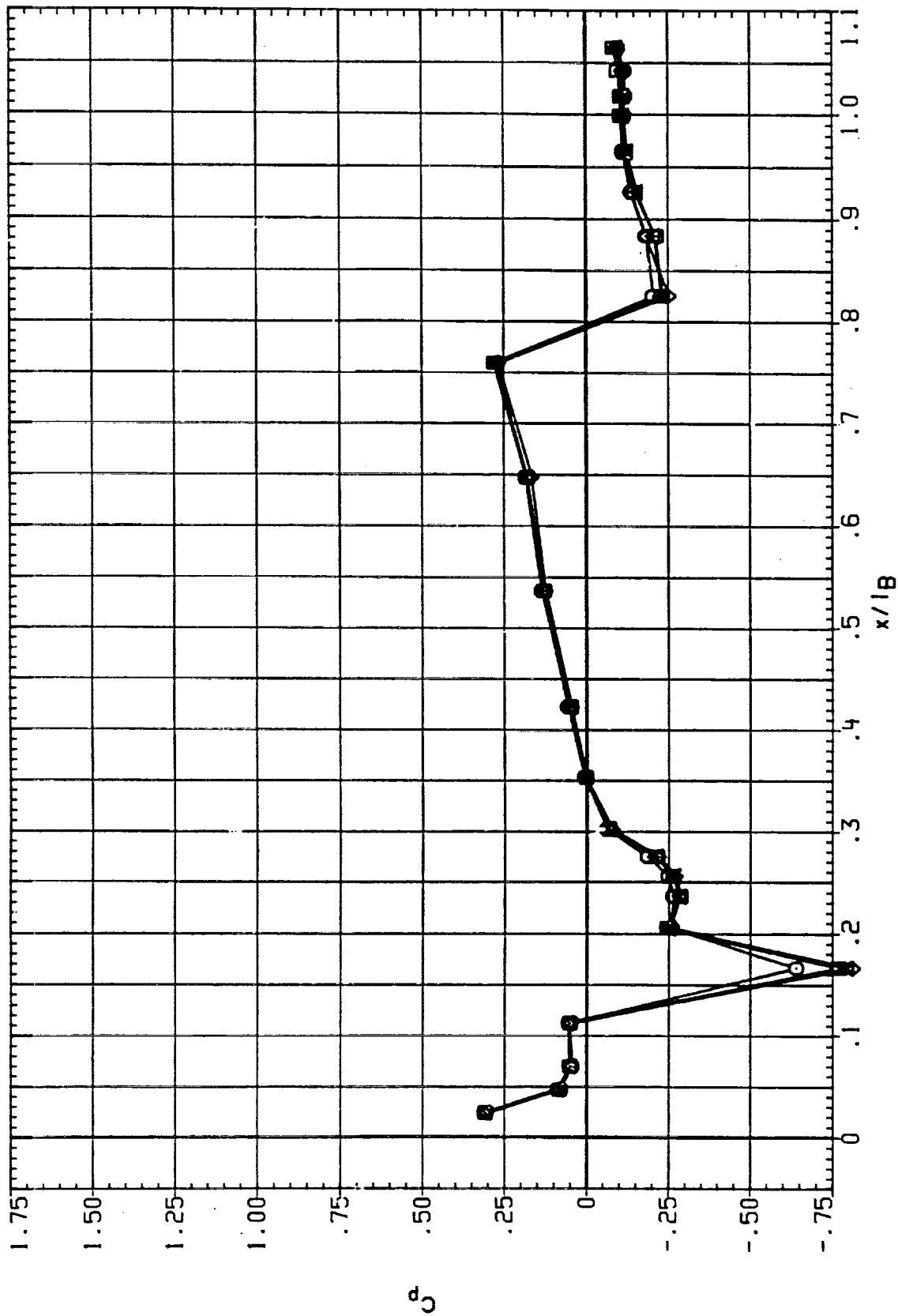


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0818)	○	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	.950	.000	10.000	9.000
(RC0845)	□	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	.950	.000	10.000	9.000
(RC0983)	◇	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	.950	180.000	10.000	9.000

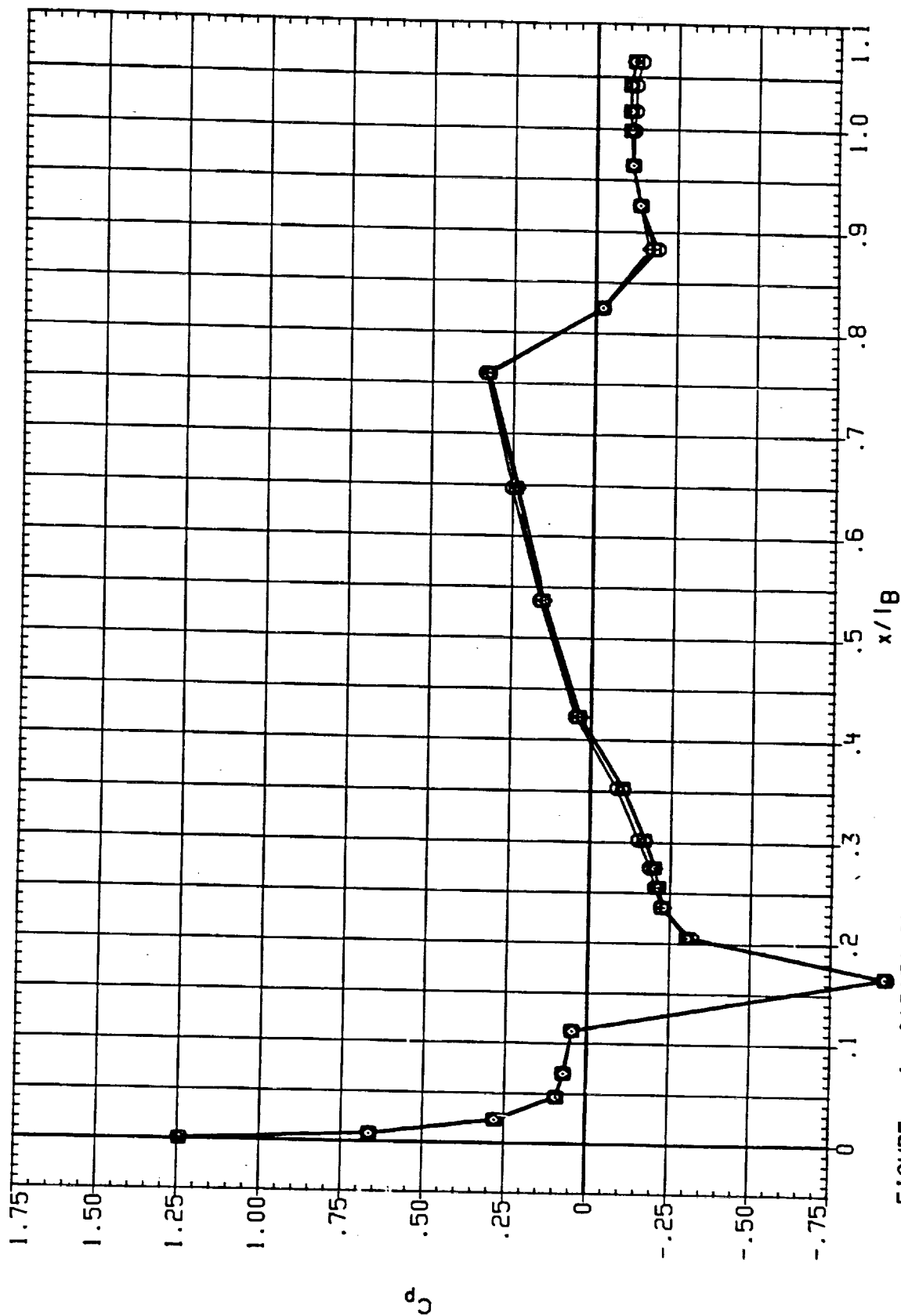


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0818)	○	IA613A.B/L OT+PSRM+PLUMES S1.2 -ORB. FUSE. & OMS	.950	.000	10.000	9.000
(RC0845)	□	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.950	.000	10.000	9.000
(RC0883)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	.950	180.000	10.000	9.000

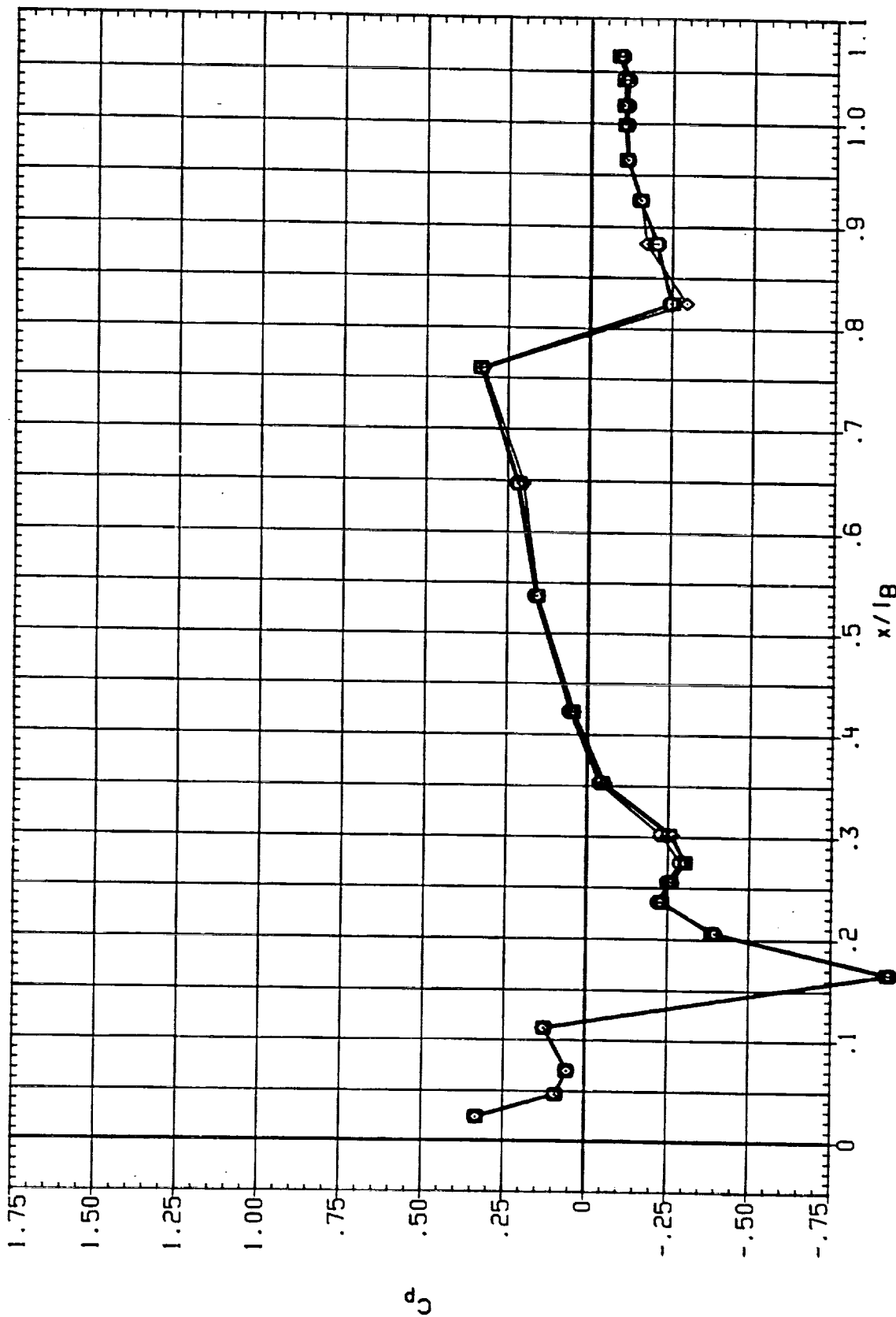


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-BOX	IB-ELV	OB-ELV
(K0819)	○	IA613A, B/L OT+RSRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0816)	□	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0884)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -ORB. FUSE. & OMS	1.050	180.000	10.000	9.000

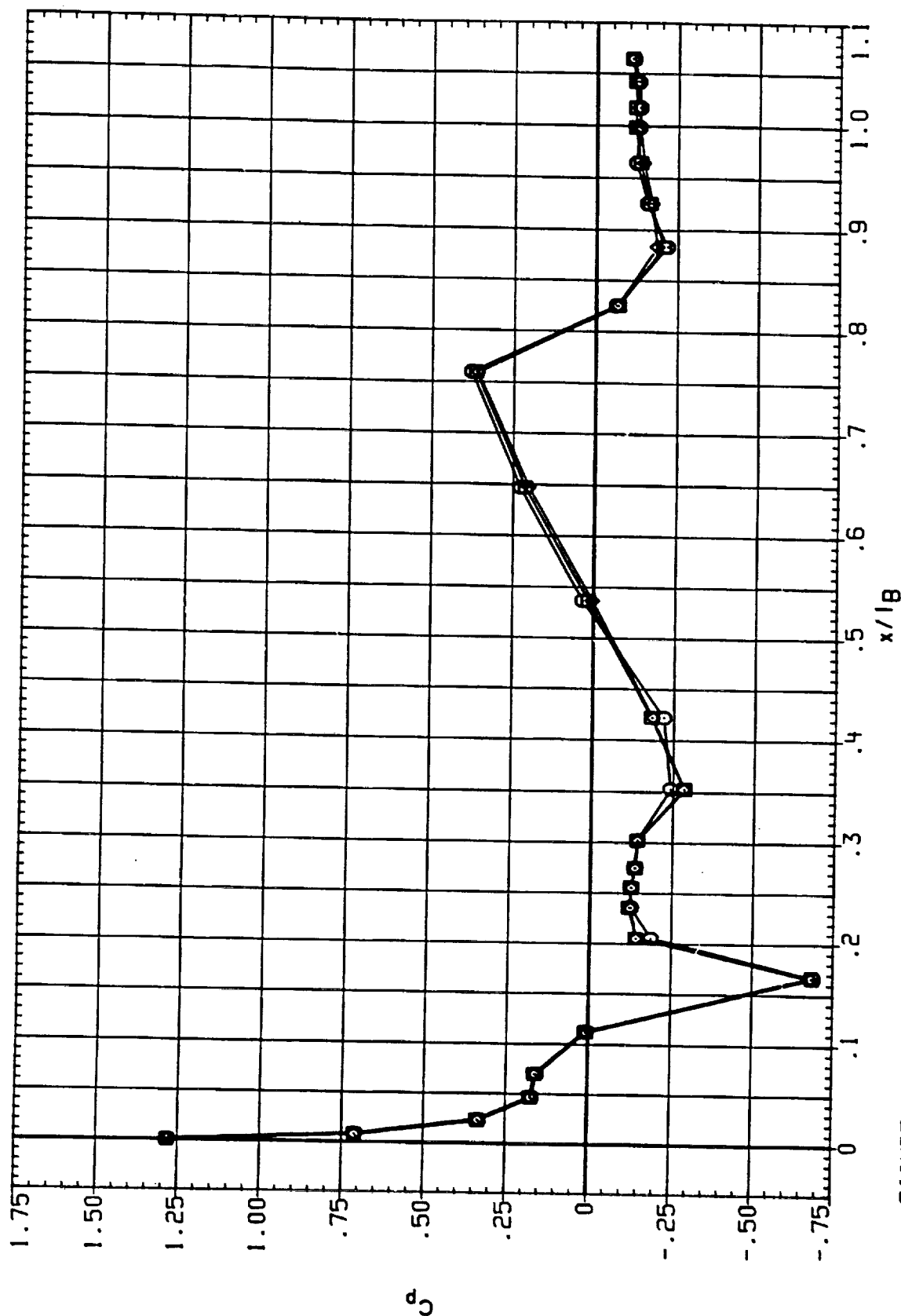


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0819)	○	IA613A, B/L OT+RSRM+PLUMES SI,2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0846)	◇	IA613A, B/L OT+ASRM+PLUMES SI,2 -ORB. FUSE. & OMS	1.050	.000	10.000	9.000
(RC0884)	◇	IA613A, B/L OT+ASRM+PLUMES SI,2 -ORB. FUSE. & OMS	1.050	180.000	10.000	9.000

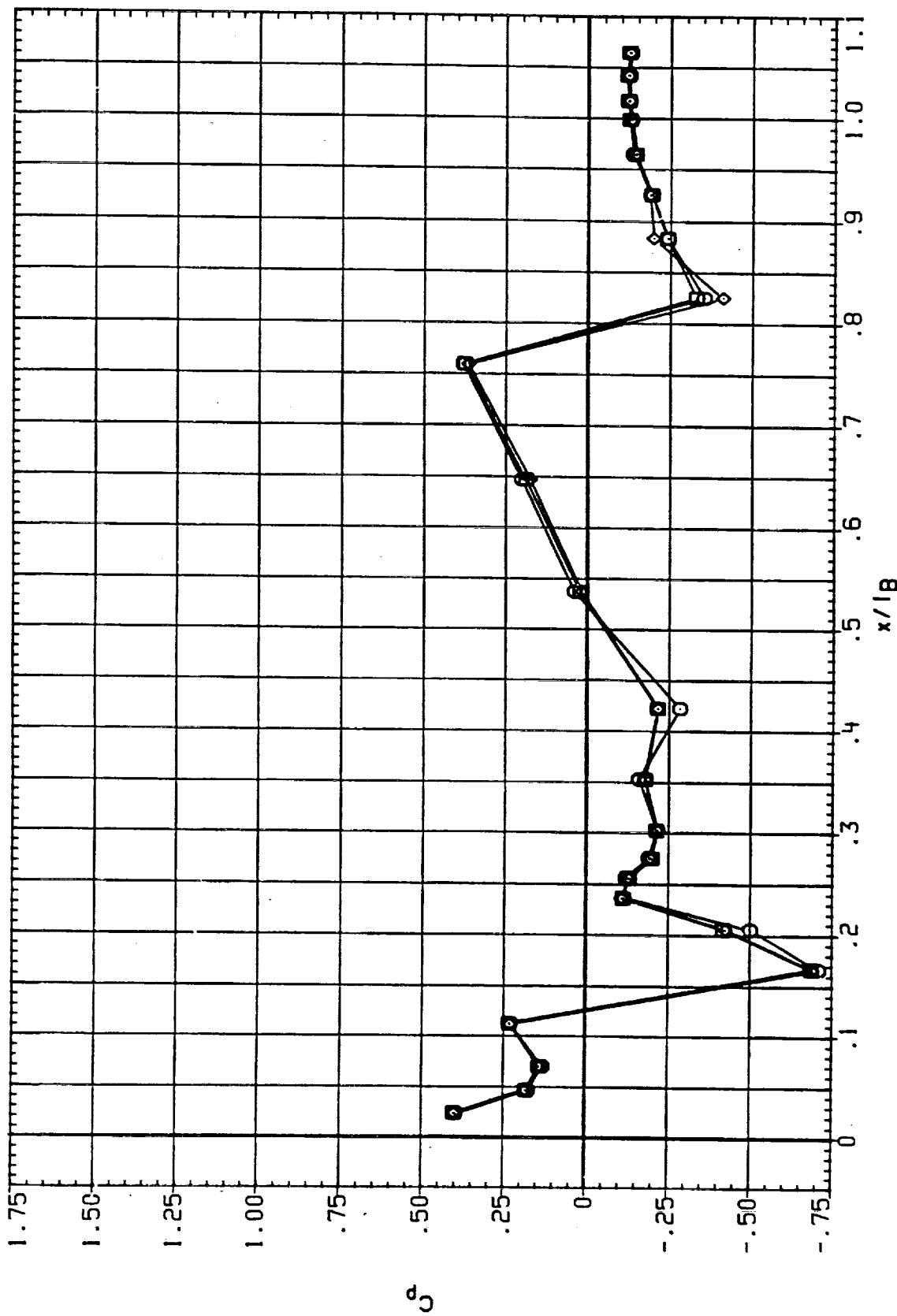


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 40.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0820)	□	IA613A, B/L OT+RSRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0847)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0885)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	180.000	10.000	9.000
(RC0883)	△	IA613A, B/L OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	999.000	10.000	5.000

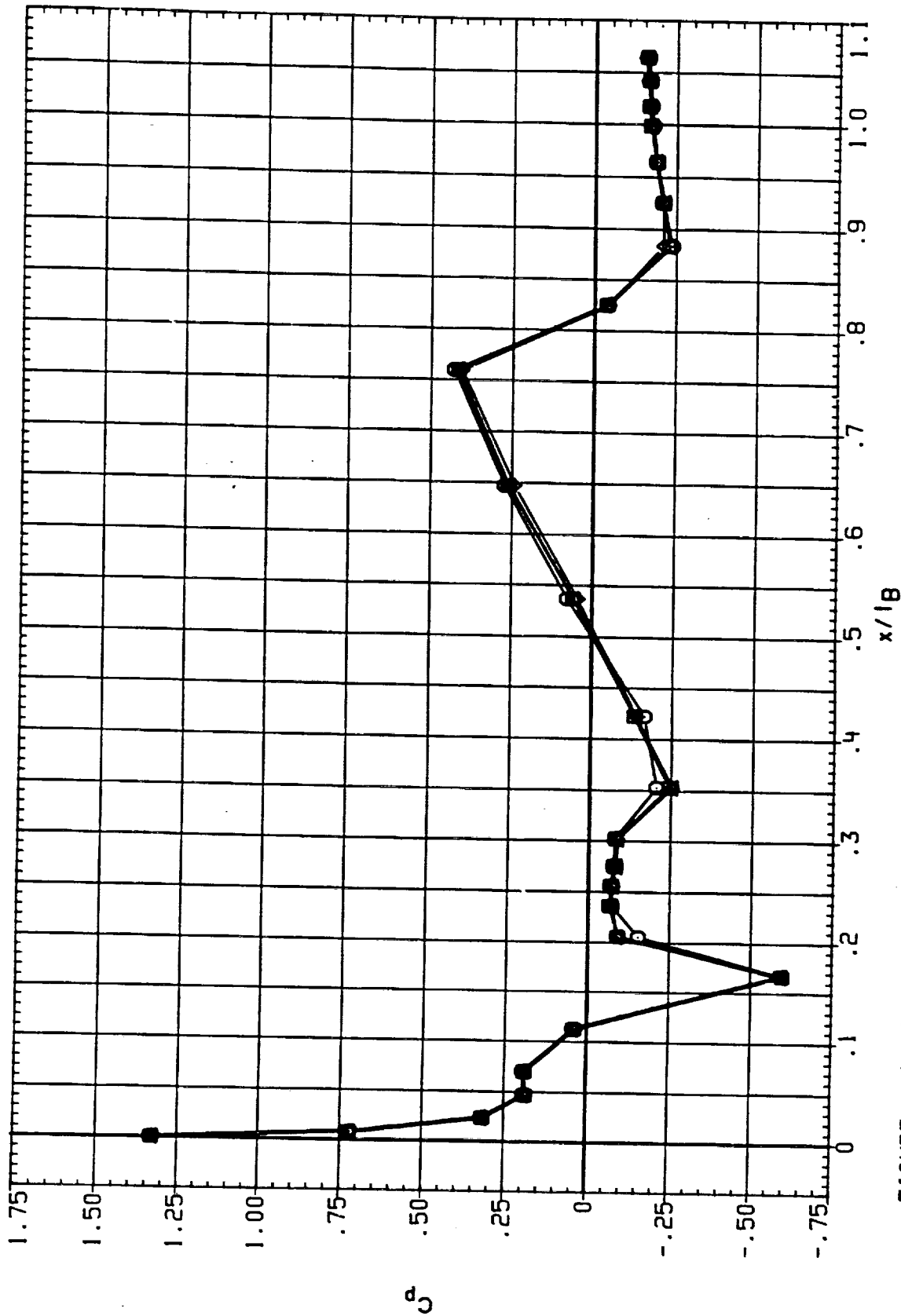


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0820)	○	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0847)	□	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	.000	10.000	9.000
(RC0885)	◇	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	180.000	10.000	9.000
(RC08C3)	△	IA613A, B/L OT+SRM+PLUMES SI.2 -ORB. FUSE. & OHS	1.100	999.000	10.000	5.000

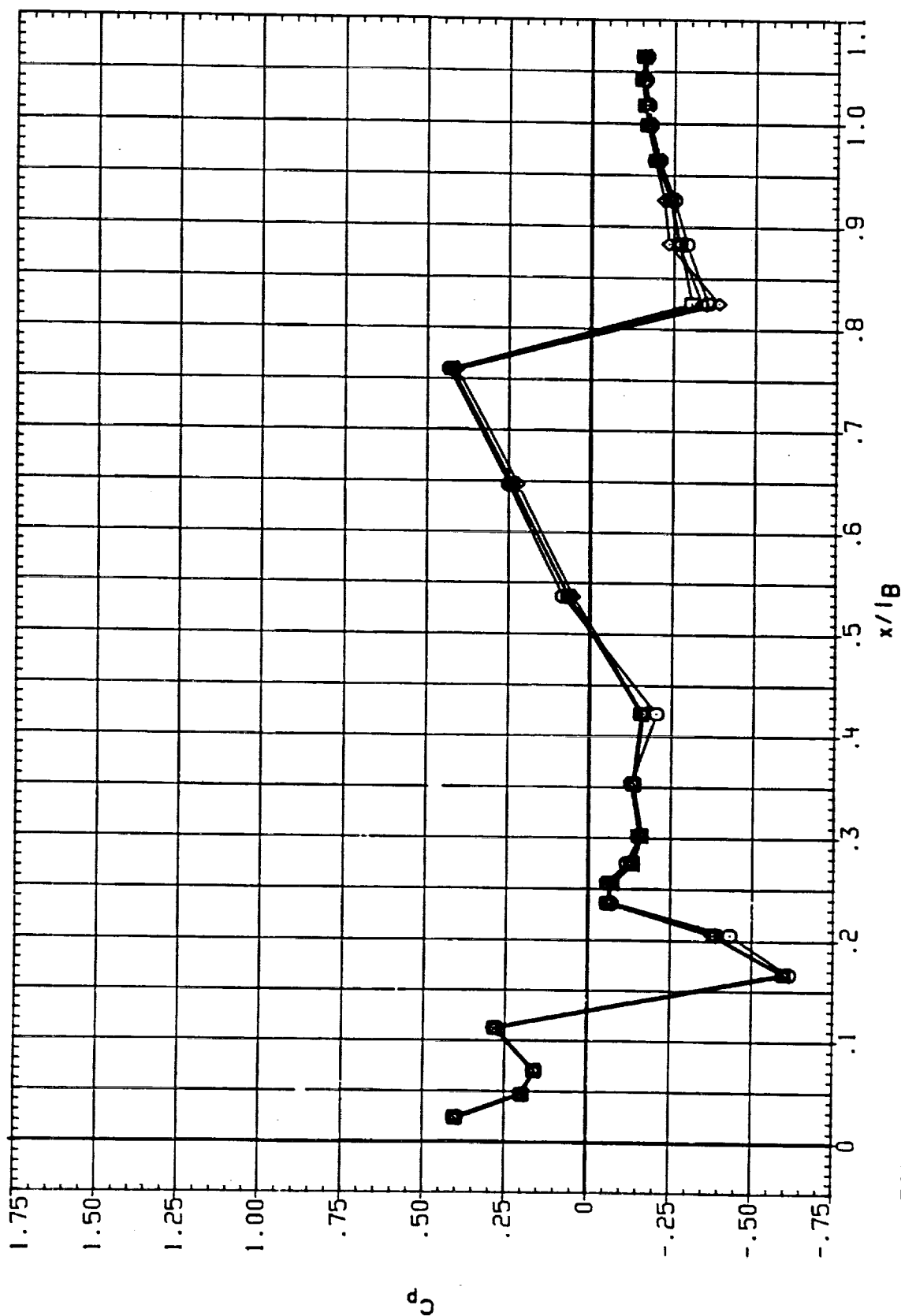


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0821)	□	IA613A,B/L OT+RSRH+PLUMES SI.2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0848)	□	IA613A,B/L OT+ASRH+PLUMES SI.2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0886)	◇	IA613A,B/L OT+ASRH+PLUMES SI.2 -ORB. FUSE. & OMS	1.150	180.000	10.000	9.000
(XC08C4)	△	IA613A,B/L OT+ASRH+PLUMES SI.2 -ORB. FUSE. & OMS	1.150	999.000	10.000	5.000

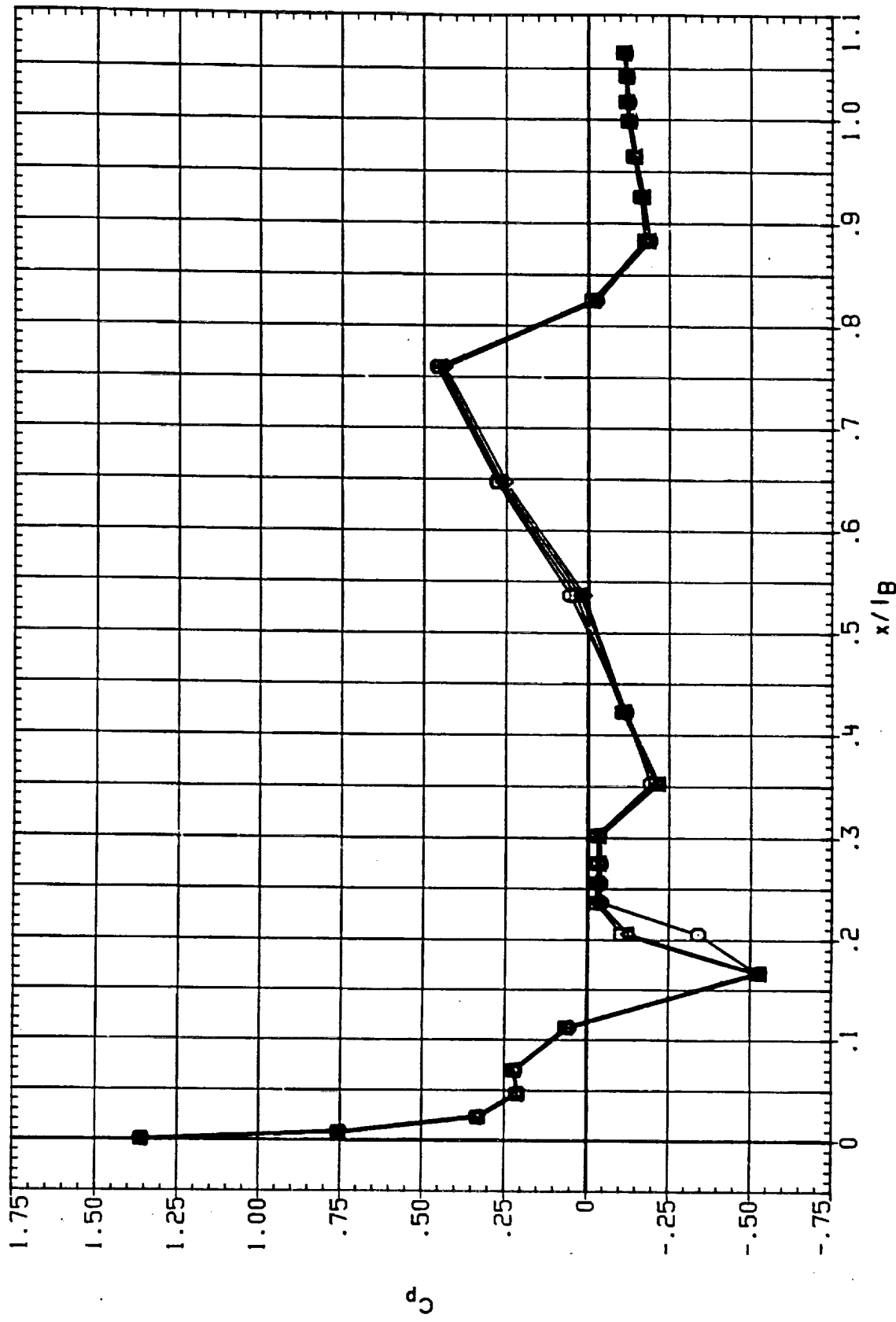


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEADING	IB-ELV	OB-ELV
(RC0821)	○	IA613A, B/L OT+RSRH+PLUMES S1,2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0848)	◇	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	1.150	.000	10.000	9.000
(RC0886)	◇	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	1.150	180.000	10.000	9.000
(XC08C4)	△	IA613A, B/L OT+ASRH+PLUMES S1,2 -ORB. FUSE. & OMS	1.150	999.000	10.000	5.000

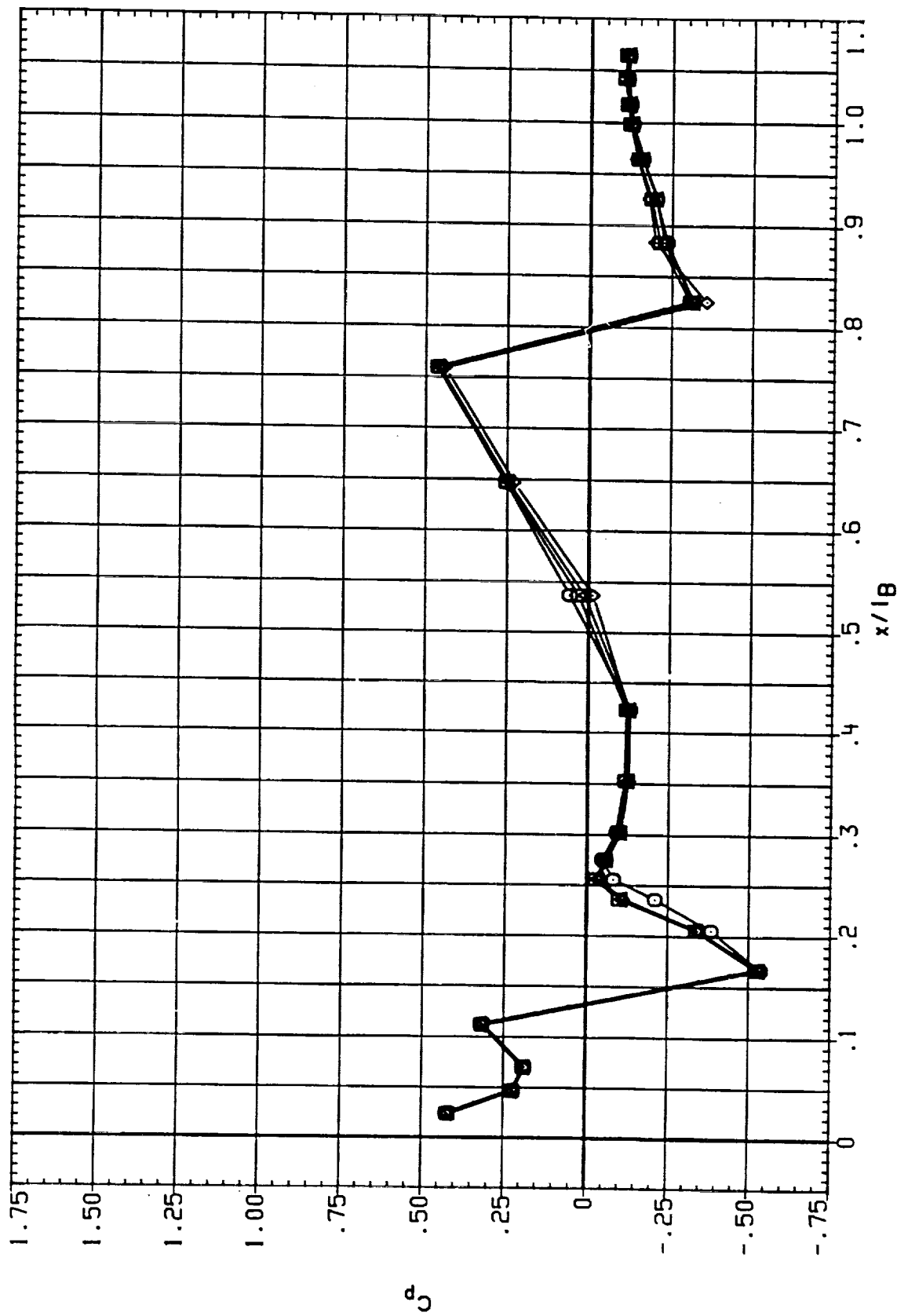


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0822)	○	IA613A-B/L OT+RSRM+PLUES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0849)	□	IA613A-B/L OT+ASRM+PLUES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0887)	◇	IA613A-B/L OT+ASRM+PLUES S1.2 -ORB. FUSE. & OMS	1.250	180.000	10.000	9.000
(RC08C5)	△	IA613A-B/L OT+ASRM+PLUES S1.2 -ORB. FUSE. & OMS	1.250	999.000	10.000	5.000

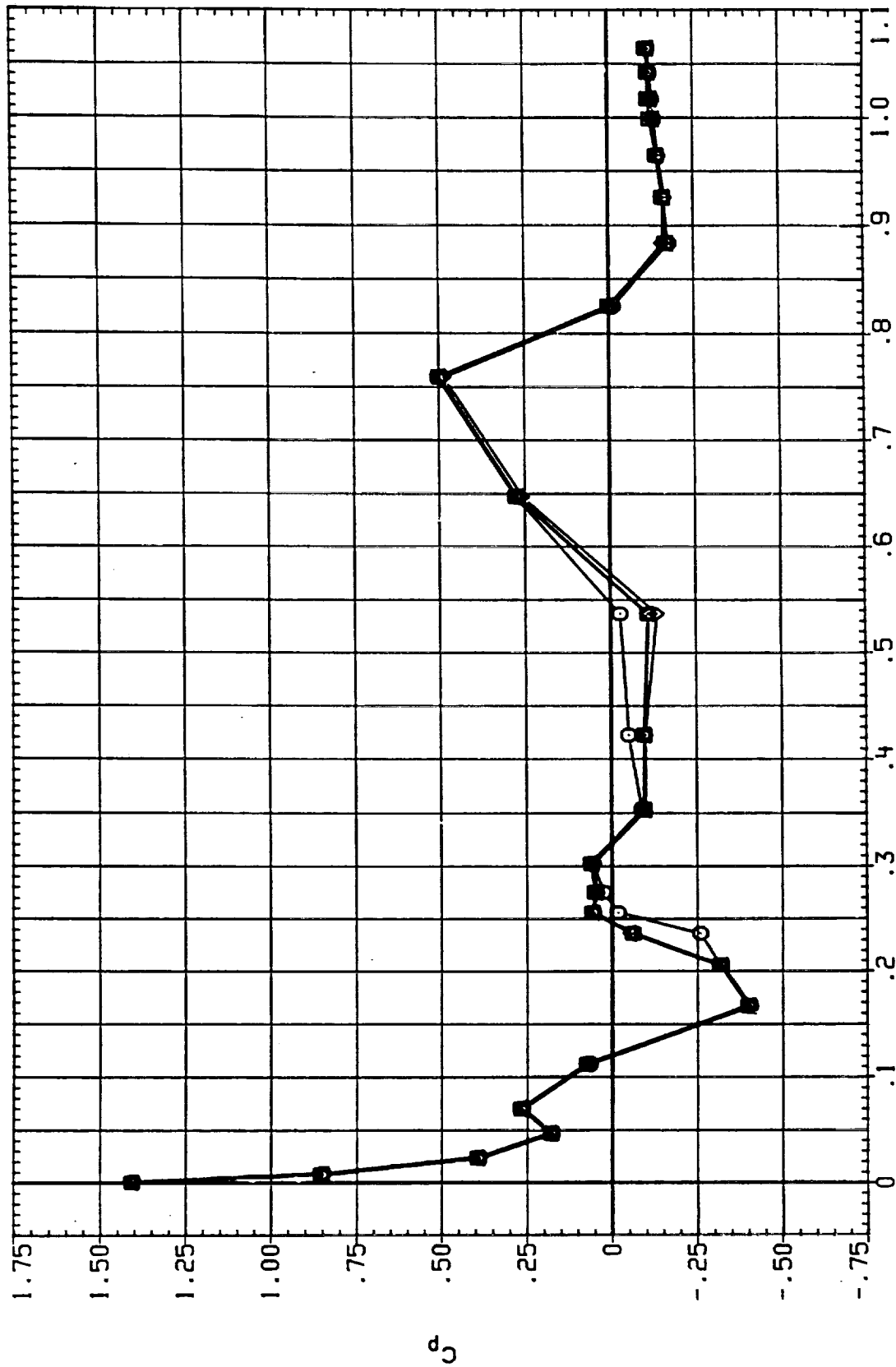


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0822)	○	IA613A-B/L OT+PSRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0849)	□	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	.000	10.000	9.000
(RC0887)	◇	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	180.000	10.000	9.000
(RC08C5)	△	IA613A-B/L OT+ASRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.250	999.000	10.000	5.000

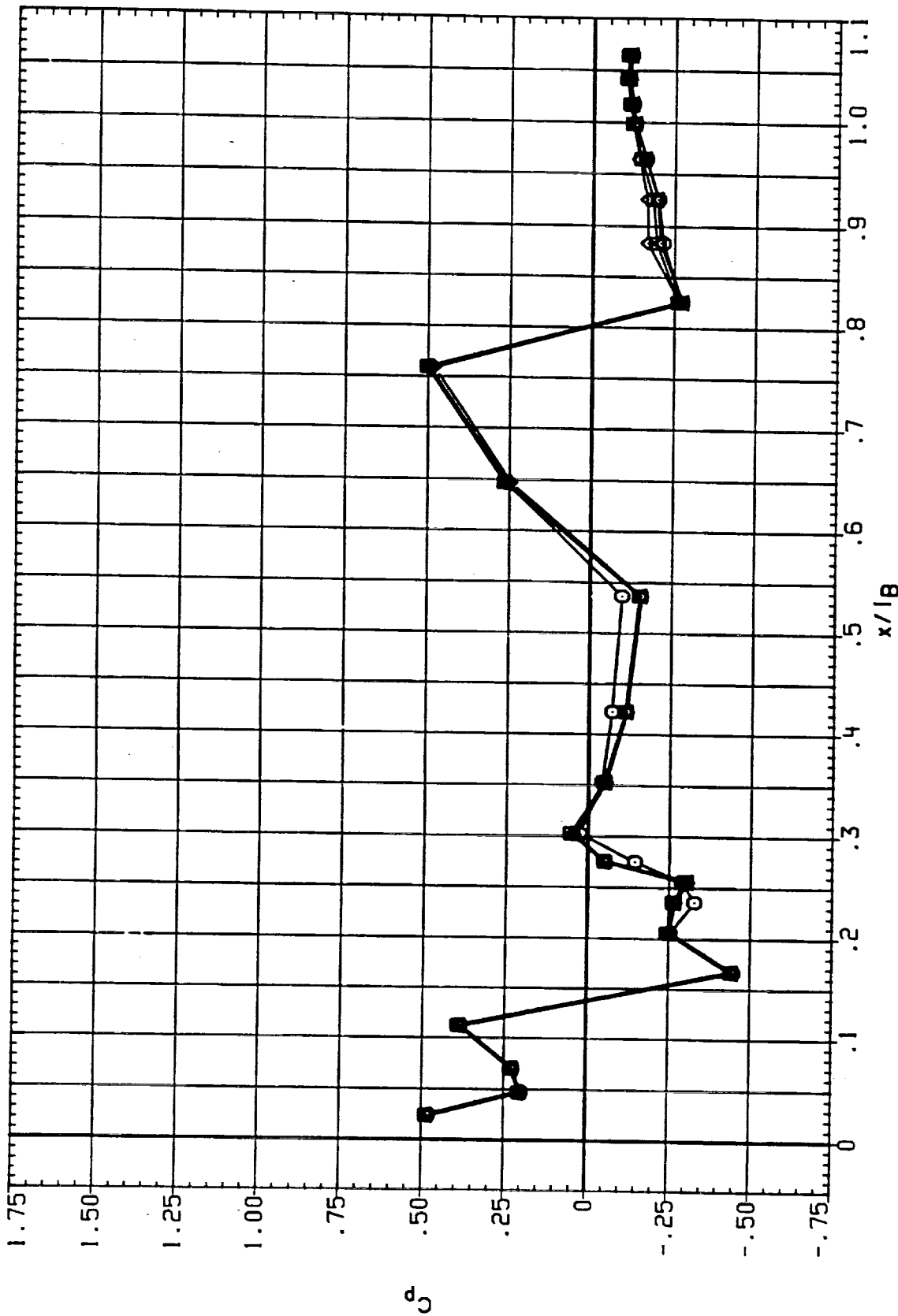


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0B16)	□	IA613A, B/L OT+ASRM+PLUMES SI.2 -ORB. FUSE. & OMS	1.300	.000	10.000	9.000
(RC0B54)	○	IA613A, B/L OT+ASRM+PLUMES SI.3 -ORB. FUSE. & OMS	1.300	.000	10.000	5.000
(RC0B89)	◇	IA613A, B/L OT+ASRM+PLUMES SI.3 -ORB. FUSE. & OMS	1.300	180.000	10.000	5.000
(RC0B87)	△	IA613A, B/L OT+ASRM+PLUMES SI.3 -ORB. FUSE. & OMS	1.300	999.000	10.000	5.000

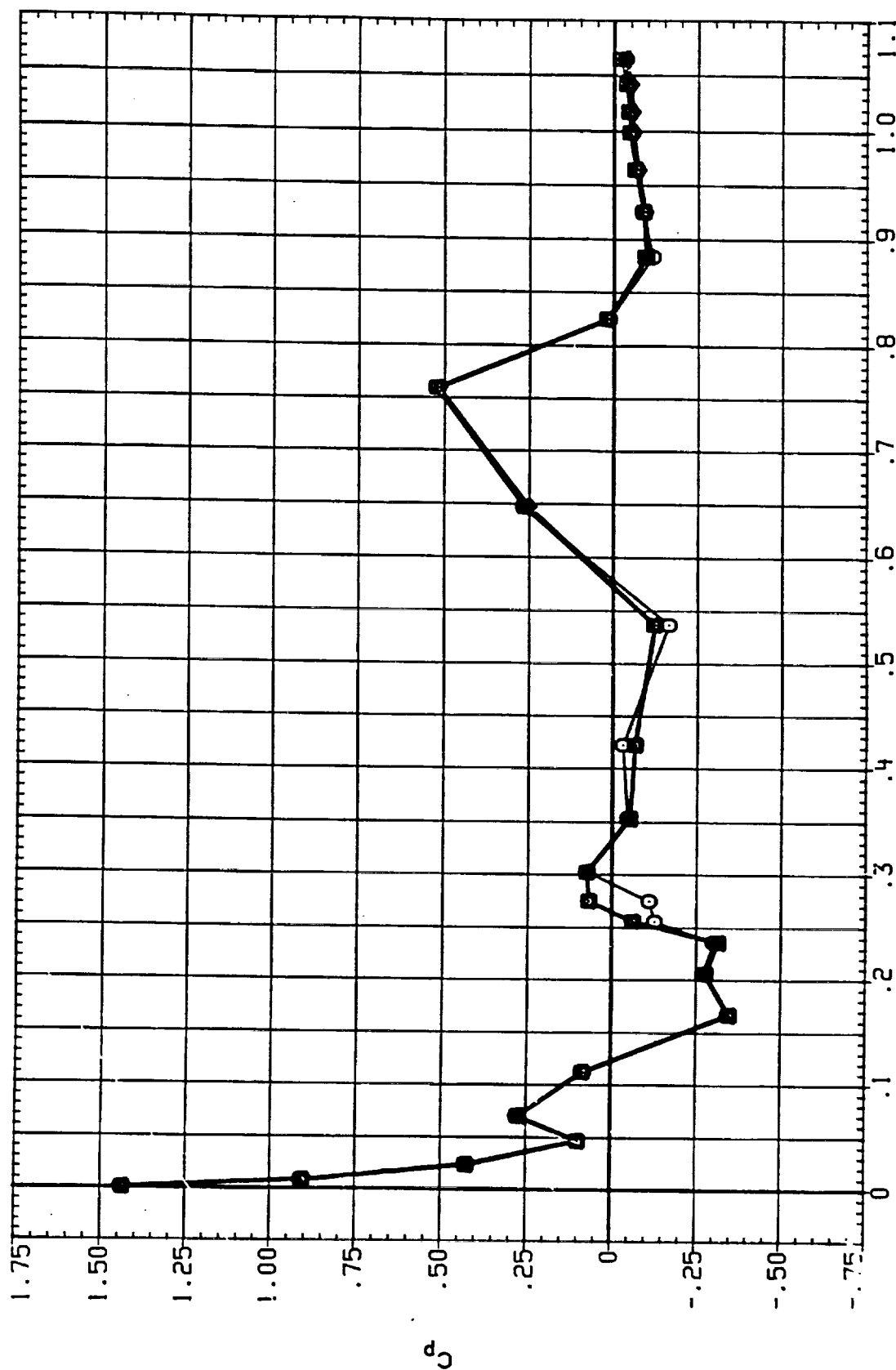


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0846)	□	IA613A, B/L OT+SRM+PLUMES S1.2 -ORB. FUSE. & OMS	1.300	.000	10.000	9.000
(RC0854)	◇	IA613A, B/L OT+SRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	.000	10.000	5.000
(RC0889)	○	IA613A, B/L OT+SRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	180.000	10.000	5.000
(RC0871)	△	IA613A, B/L OT+SRM+PLUMES S1.3 -ORB. FUSE. & OMS	1.300	999.000	10.000	5.000

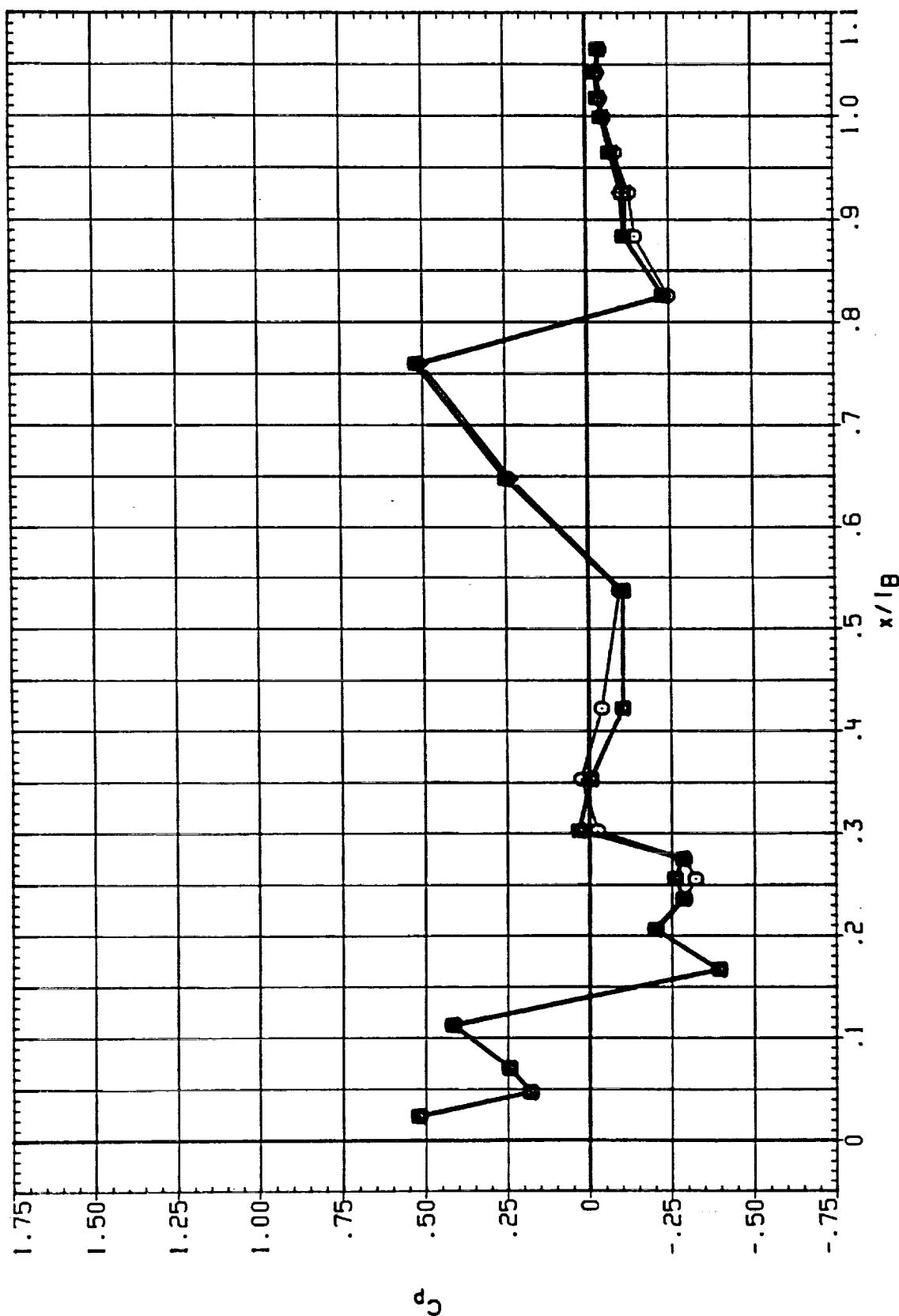


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE  
BETA = .000 PHI = 40.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RC08H7)	□	IA613A.B/L OT*ASRM*PLUMES SI.2 -ORB. FUSE. & OMS	1.350	.000	10.000	9.000
(RC0855)	◇	IA613A.B/L OT*ASRM*PLUMES SI.3 -ORB. FUSE. & OMS	1.350	.000	10.000	5.000
(RC0890)	◇	IA613A.B/L OT*ASRM*PLUMES SI.3 -ORB. FUSE. & OMS	1.350	180.000	10.000	5.000
(RC08CB)	△	IA613A.B/L OT*ASRM*PLUMES SI.3 -ORB. FUSE. & OMS	1.350	999.000	10.000	5.000

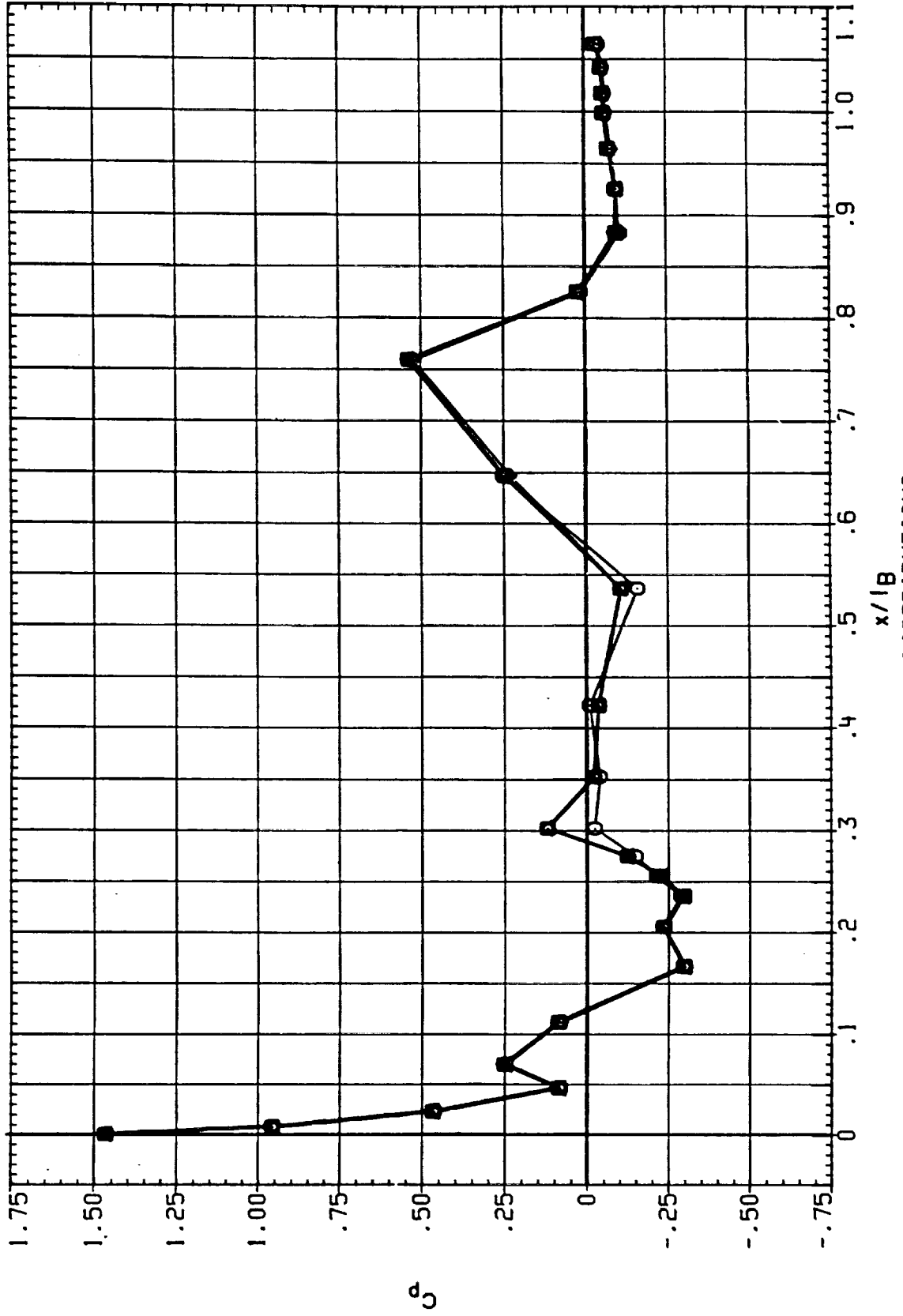


FIGURE 1 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = .000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08H7)	□	IA613A-B/L OT*ASRM*PLUNES SI.2 -ORB. FUSE. & OHS	1.350	.000	10.000	9.000
(RC0855)	□	IA613A-B/L OT*ASRM*PLUNES SI.3 -ORB. FUSE. & OHS	1.350	.000	10.000	5.000
(RC0890)	◇	IA613A-B/L OT*ASRM*PLUNES SI.3 -ORB. FUSE. & OHS	1.350	180.000	10.000	5.000
(RC08C8)	△	IA613A-B/L OT*ASRM*PLUNES SI.3 -ORB. FUSE. & OHS	1.350	999.000	10.000	5.000

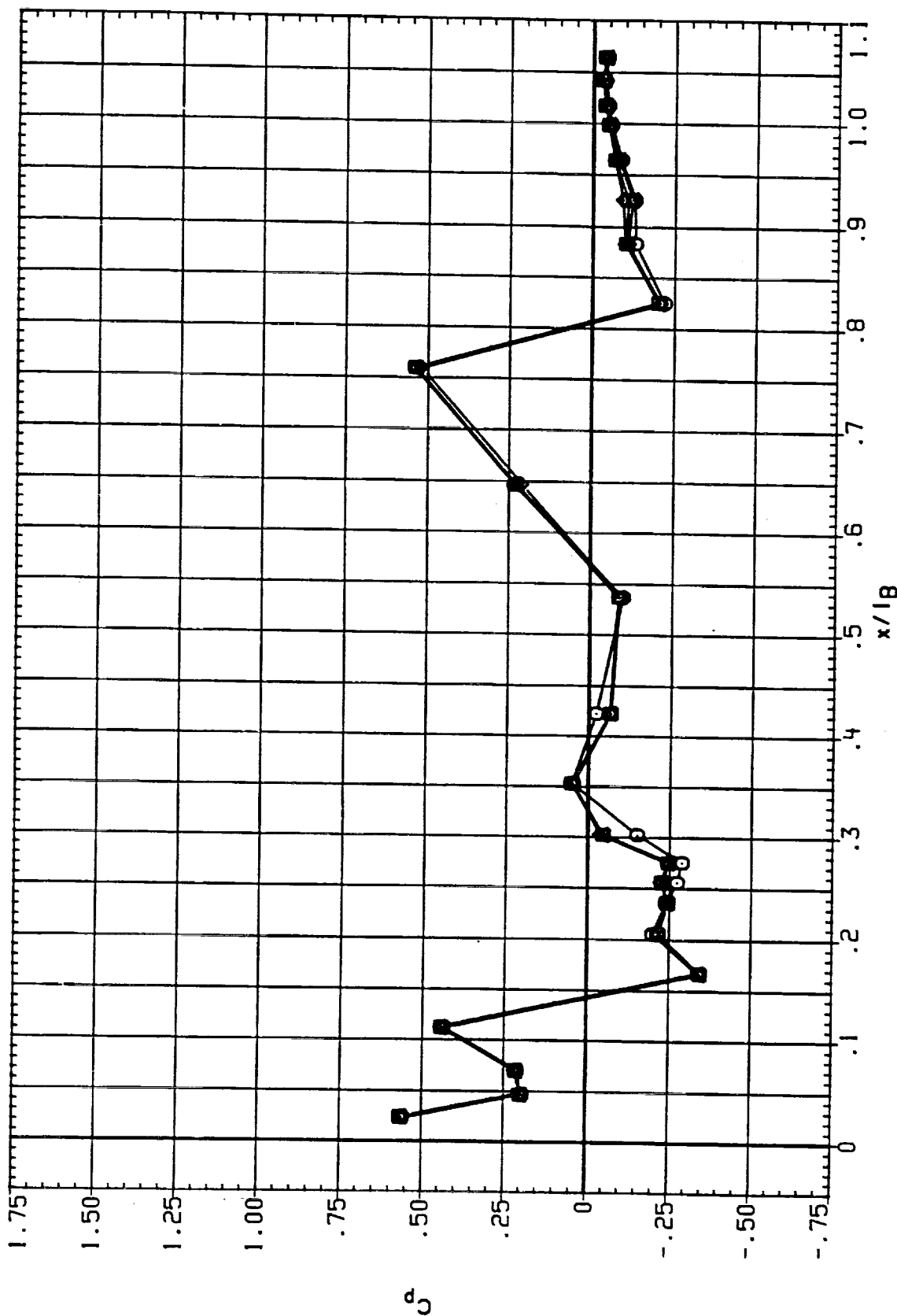


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08H8)	○	IA613A, B/L OT+RSRM+PLUMES S1,2 -ORB. FUSE. & OMS	1.400	.000	10.000	9.000
(RC0856)	□	IA613A, B/L OT+ASRM+PLUMES S1,3 -ORB. FUSE. & OMS	1.400	.000	10.000	5.000
(RC0891)	◇	IA613A, B/L OT+ASRM+PLUMES S1,3 -ORB. FUSE. & OMS	1.400	180.000	10.000	5.000
(RC08C9)	△	IA613A, B/L OT+ASRM+PLUMES S1,3 -ORB. FUSE. & OMS	1.400	999.000	10.000	5.000

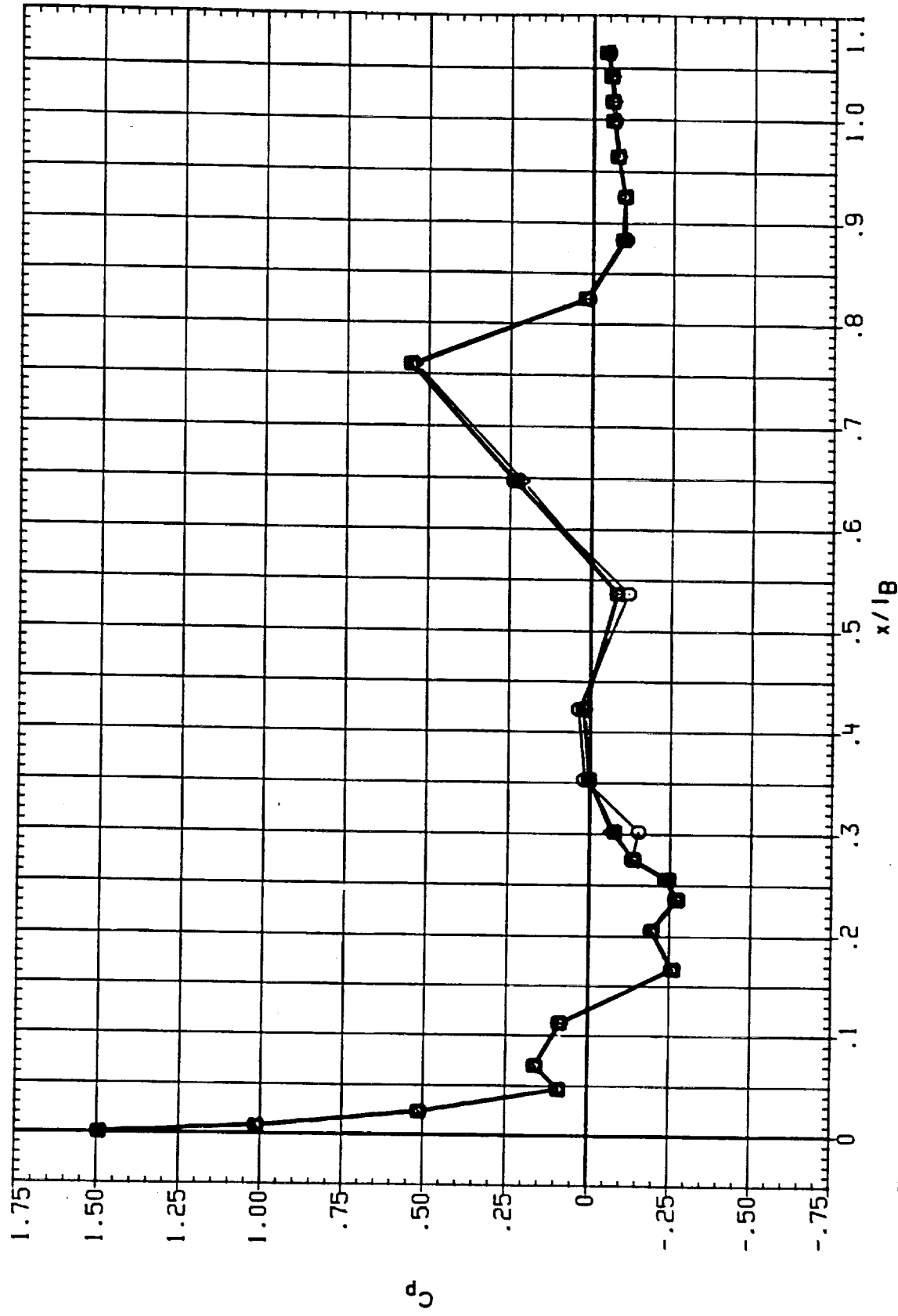


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC08H8)  
(RC0856)  
(RC0891)  
(RC08C9)

□  
□  
◇  
△

IA613A.B/L OT\*ASRM\*PLUHS SI.2 -ORB. FUSE. & OMS  
IA613A.B/L OT\*ASRM\*PLUHS SI.3 -ORB. FUSE. & OMS  
IA613A.B/L OT\*ASRM\*PLUHS SI.3 -ORB. FUSE. & OMS  
IA613A.B/L OT\*ASRM\*PLUHS SI.3 -ORB. FUSE. & OMS

MACH IEABOX IB-ELV OB-ELV  
1.400 .000 10.000 9.000  
1.400 .000 10.000 5.000  
1.400 180.000 10.000 5.000  
1.400 999.000 10.000 5.000

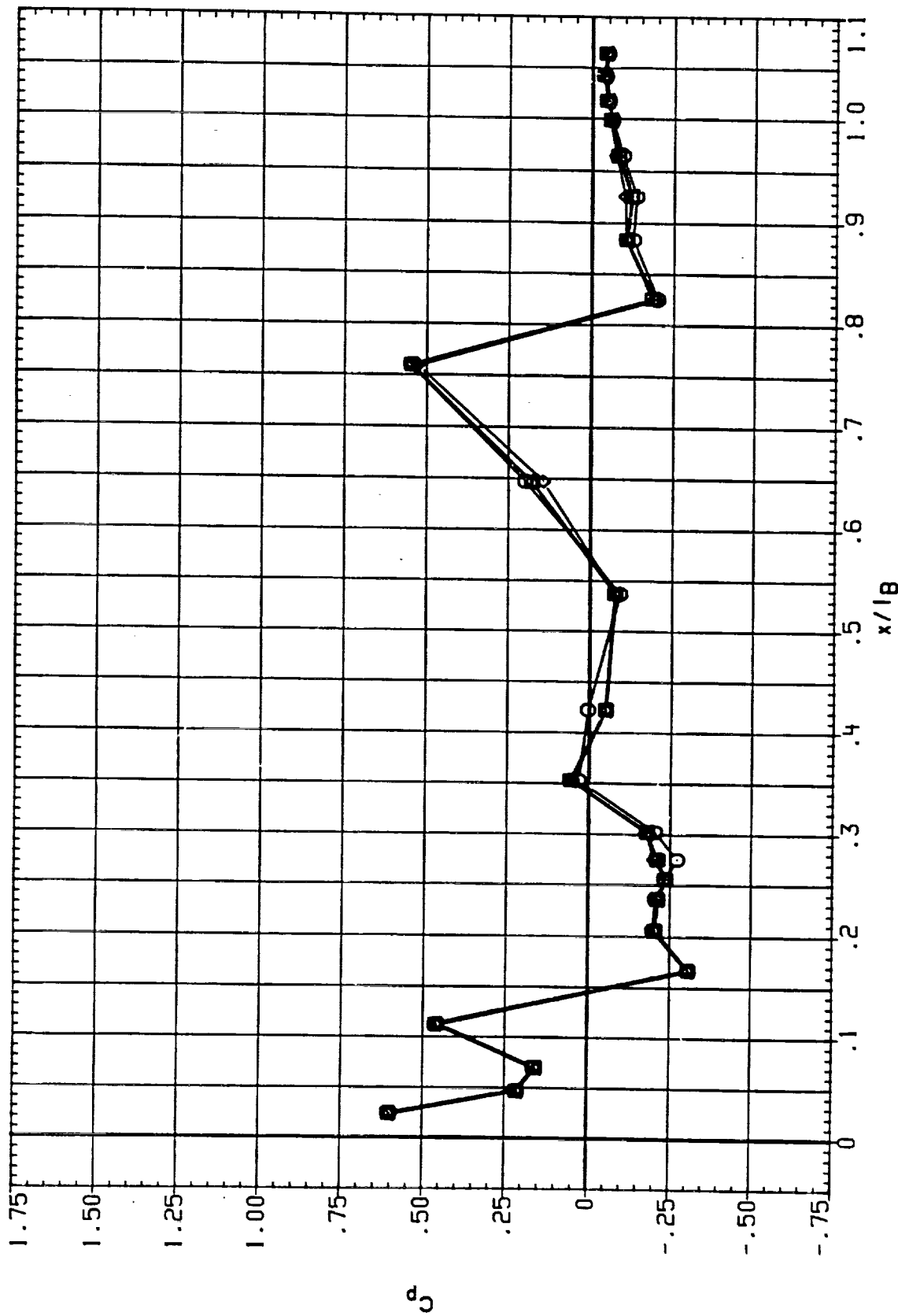


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER FUSELAGE

BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RC08H9)	○	IA613A,B/L OT+RSRH+PLUMES SI.2 -ORB. FUSE. & OMS	1.550	.000	10.000	9.000
(RC0857)	□	IA613A,B/L OT+ASRH+PLUMES SI.3 -ORB. FUSE. & OMS	1.550	.000	10.000	5.000
(RC0892)	◇	IA613A,B/L OT+ASRH+PLUMES SI.3 -ORB. FUSE. & OMS	1.550	180.000	10.000	5.000
(RC08D0)	△	IA613A,B/L OT+ASRH+PLUMES SI.3 -ORB. FUSE. & OMS	1.550	999.000	10.000	5.000

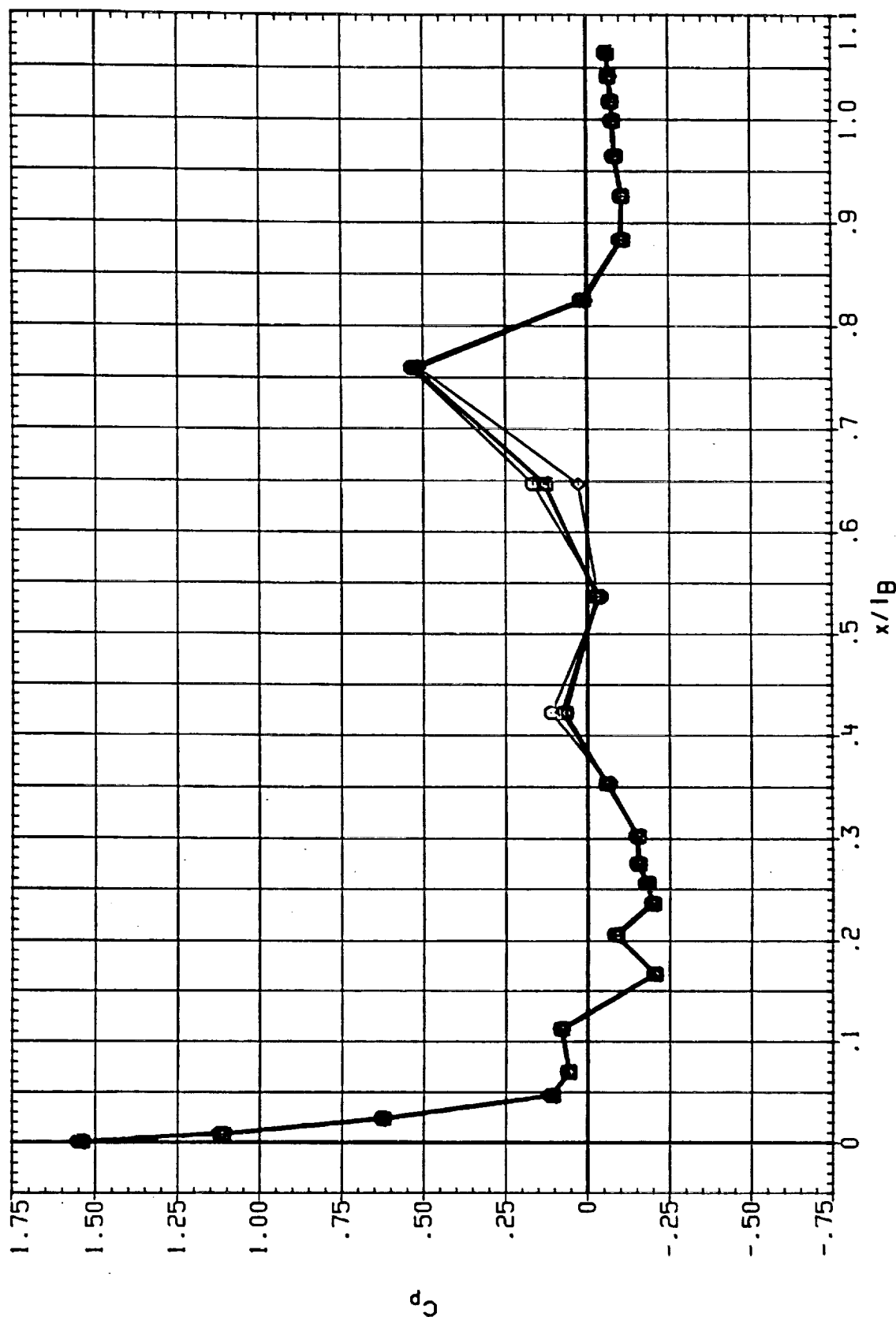


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC08H9)	○	IA613A, B/L OT+RSRH+PLUHS SI.2 -ORB. FUSE. 1 OMS	1.550	.000	10.000	9.000
(RC0857)	◇	IA613A, B/L OT+ASRH+PLUHS SI.3 -ORB. FUSE. 1 OMS	1.550	.000	10.000	5.000
(RC0892)	◇	IA613A, B/L OT+ASRH+PLUHS SI.3 -ORB. FUSE. 1 OMS	1.550	180.000	10.000	5.000
(RC08D0)	△	IA613A, B/L OT+ASRH+PLUHS SI.3 -ORB. FUSE. 1 OMS	1.550	999.000	10.000	5.000

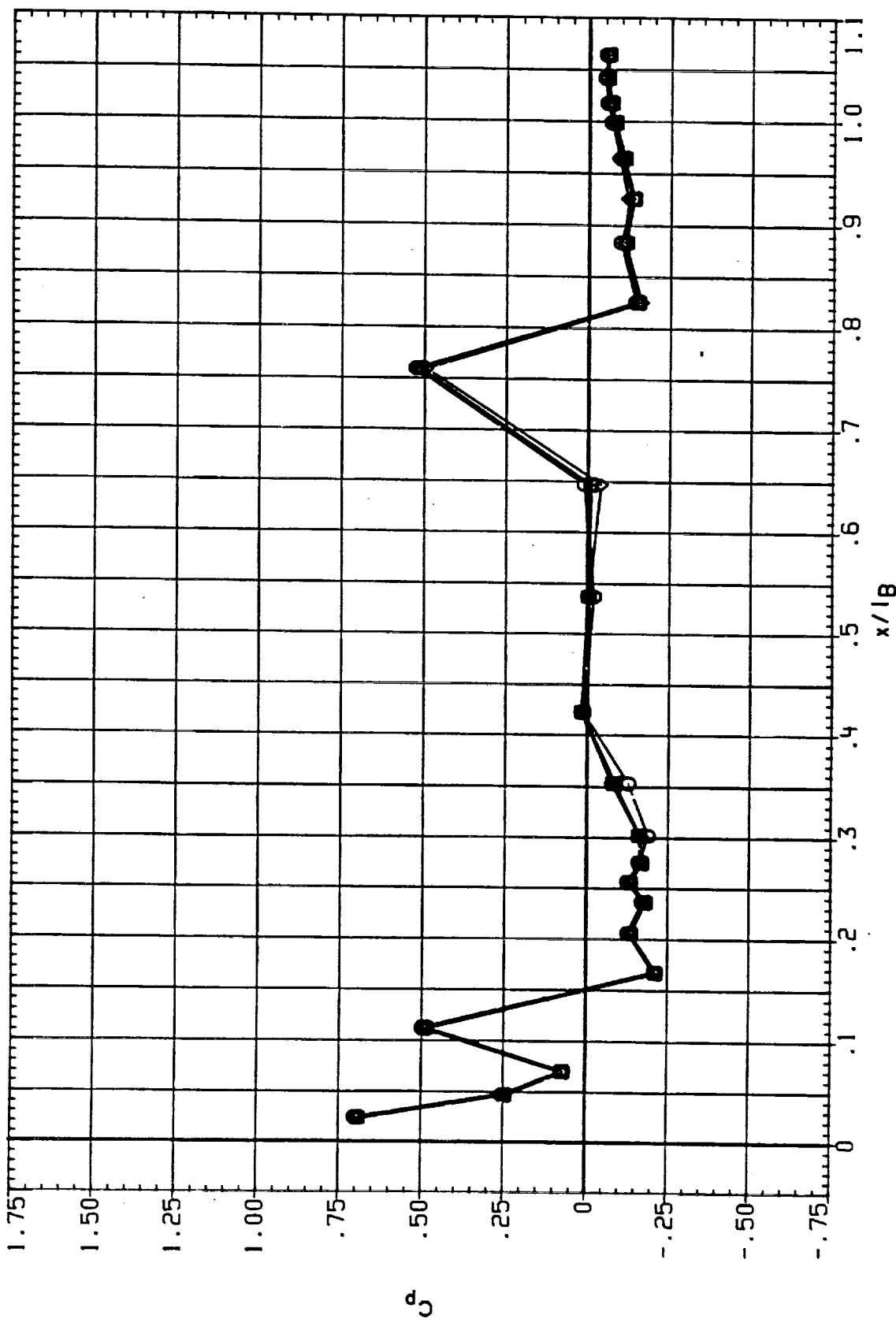


FIGURE 1 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER FUSELAGE  
 BETA = .000 PHI = 40.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE15)	○	IA613A, B/L OT+ASRN+PLUHS S1.2	.600	.000	10.000	9.000
(RCOE42)	□	IA613A, B/L OT+ASRN+PLUHS S1.2	.600	.000	10.000	9.000
(RCOE80)	◇	IA613A, B/L OT+ASRN+PLUHS S1.2	.600	180.000	10.000	9.000
(RCOE11)	△	IA613A, B/L OT+ASRN+PLUHS S1.2	.600	999.000	10.000	5.000

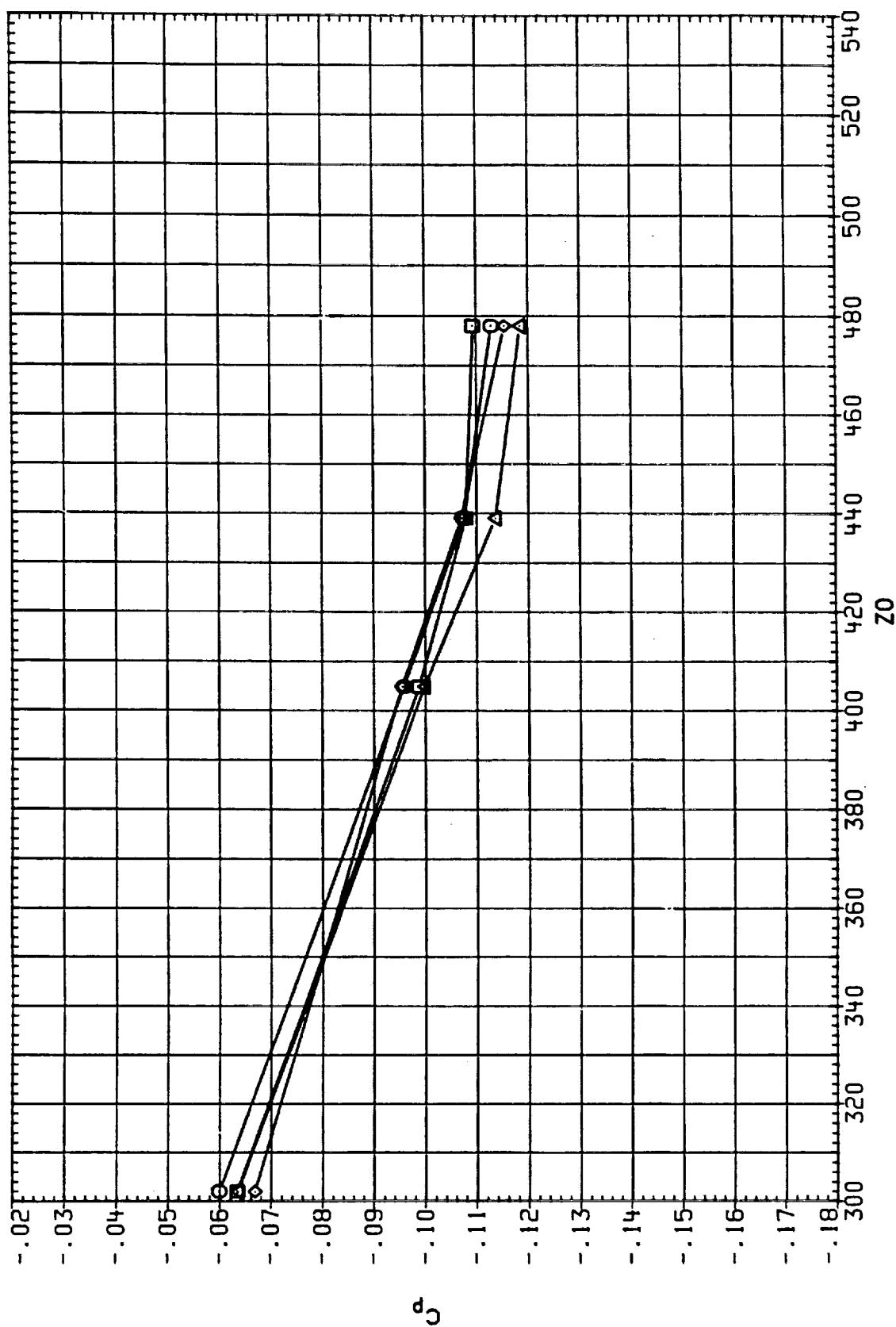


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBITER BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE151)	□	IA613A.B/L OT+SRM+PLUMES S1.2	-ORBITER BASE	.600	.000	10.000	9.000
(RCOE152)	□	IA613A.B/L OT+SRM+PLUMES S1.2	-ORBITER BASE	.600	.000	10.000	9.000
(RCOE153)	△	IA613A.B/L OT+SRM+PLUMES S1.2	-ORBITER BASE	.600	180.000	10.000	9.000
(RCOE154)	△	IA613A.B/L OT+SRM+PLUMES S1.2	-ORBITER BASE	.600	999.000	10.000	5.000

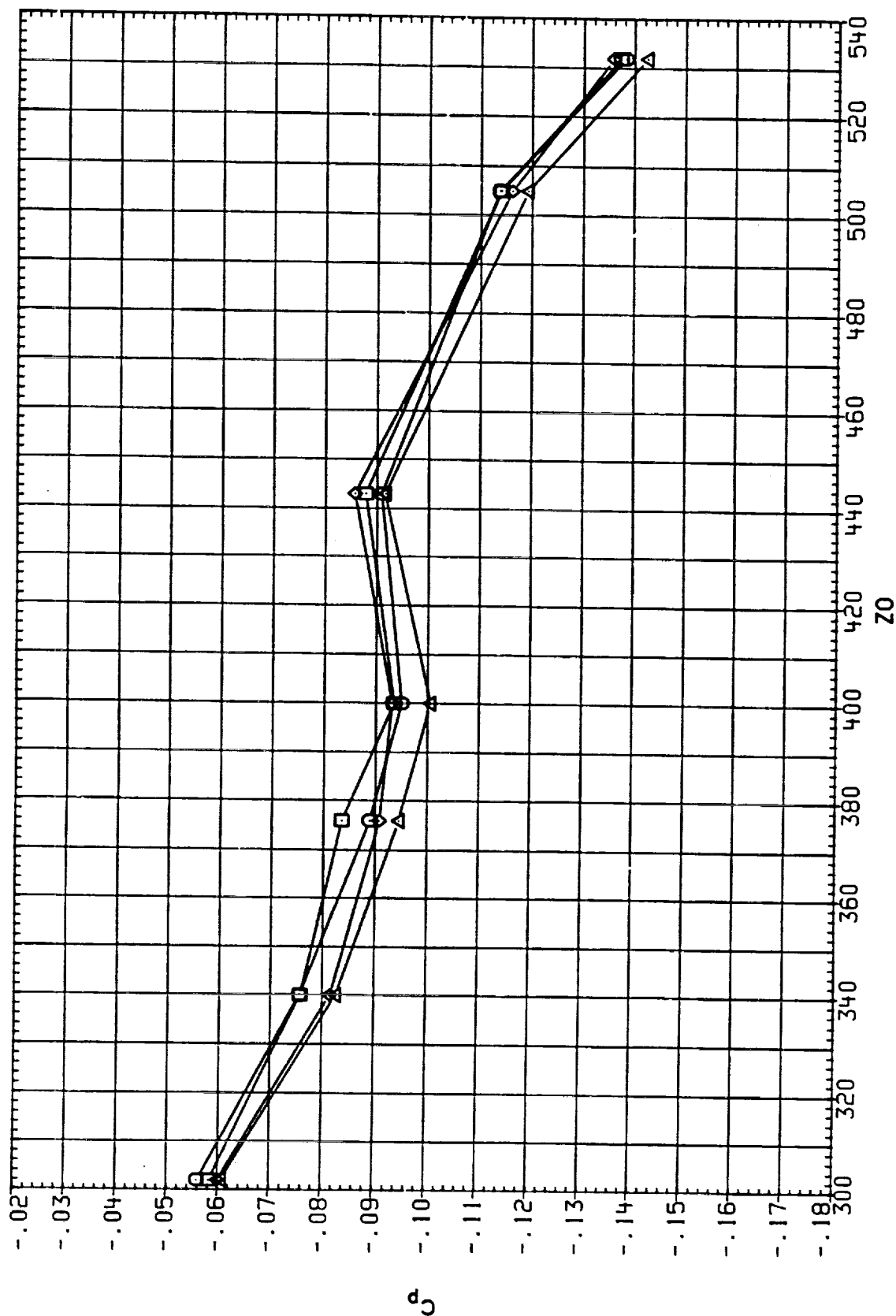


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BASE

BETA = .000 YO = .000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE161)	○	IA613A, B/L OT+RSRM+PLUMES S1,2	.800	.000	10.000	9.000
(RCOE131)	□	IA613A, B/L OT+ASRM+PLUMES S1,2	.800	.000	10.000	9.000
(RCOE111)	◇	IA613A, B/L OT+ASRM+PLUMES S1,2	.800	180.000	10.000	9.000

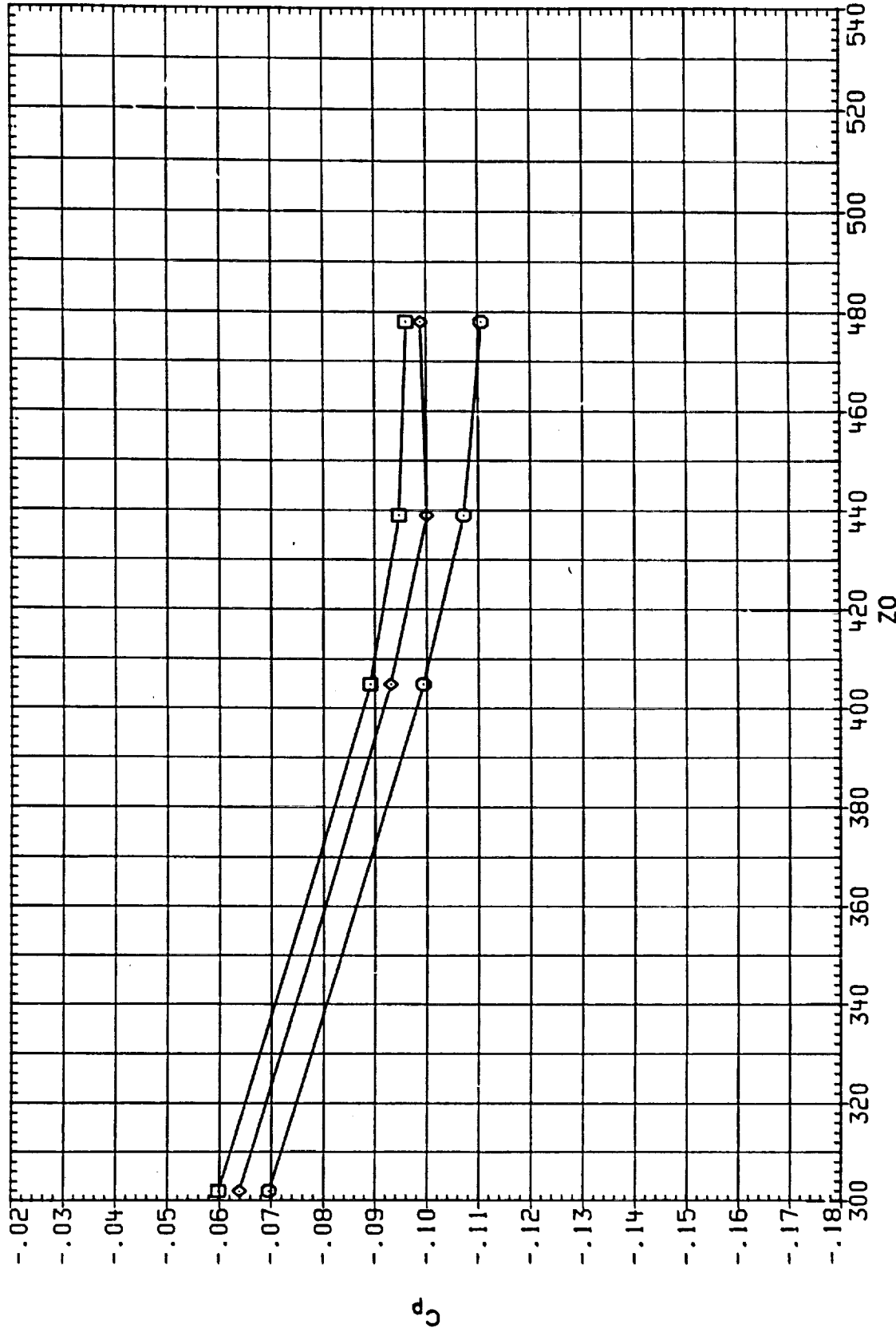


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE16)	□	1A613A, B/L OT+RSRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOE43)	□	1A613A, B/L OT+ASRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOE81)	◇	1A613A, B/L OT+ASRH+PLUMES SI.2	.800	180.000	10.000	9.000

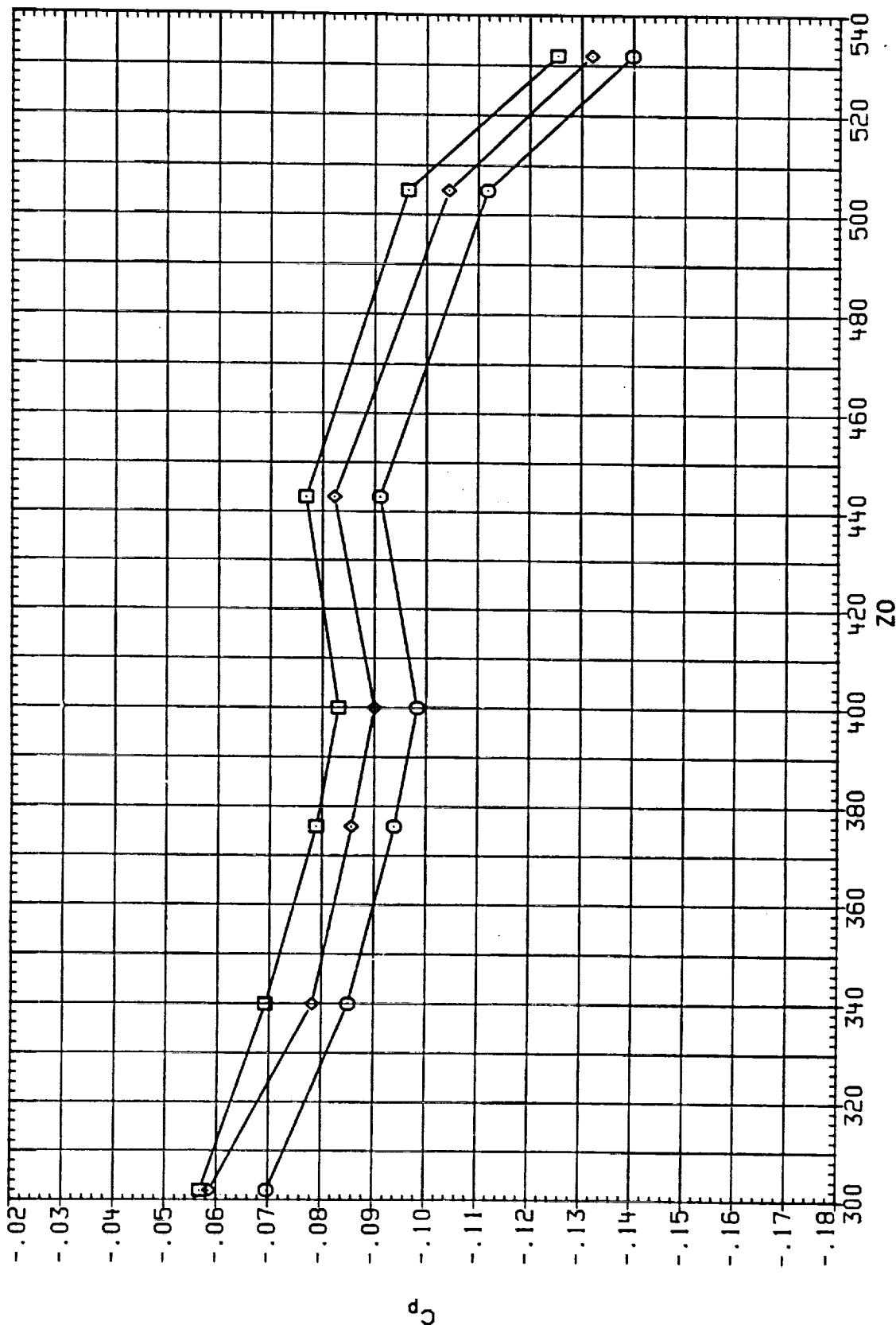


FIGURE 2 1A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE17)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	.900	.000	10.000	9.000
(RCOE44)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	.000	10.000	9.000
(RCOE82)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	180.000	10.000	9.000
(RCOE62)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	999.000	10.000	5.000

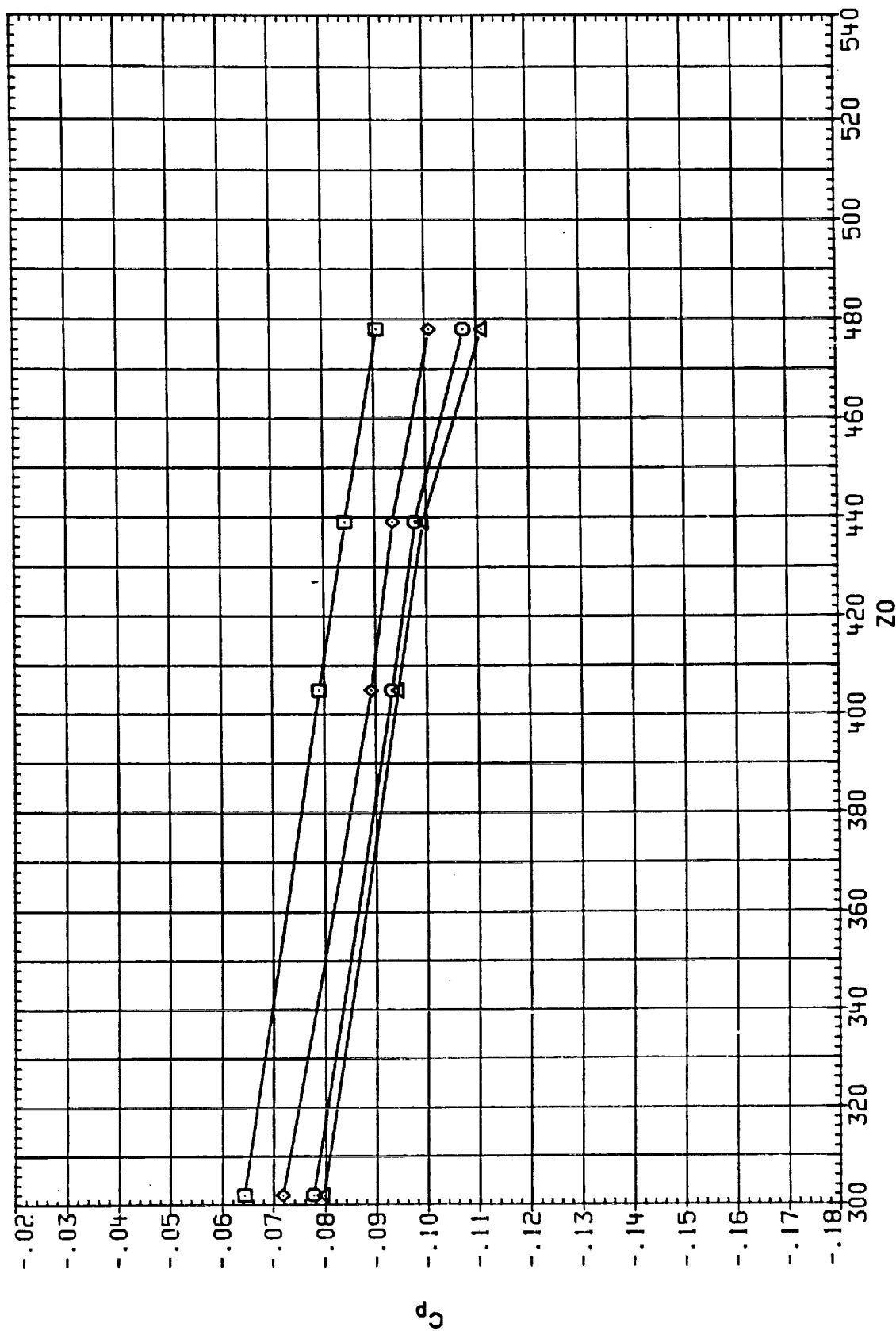


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BASE

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONF IGURATION DESCRIPTION	ORBITER BASE	HACH	IEABOX	18-ELV	OB-ELV
(RCOE17)	□	IA613A.B/L OT*ASRM*PLUMES SI.2	-ORBITER BASE	.900	.000	10.000	9.000
(RCOE44)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	-ORBITER BASE	.900	.000	10.000	9.000
(RCOE82)	△	IA613A.B/L OT*ASRM*PLUMES SI.2	-ORBITER BASE	.900	180.000	10.000	9.000
(RCOE2)	△	IA613A.B/L OT*ASRM*PLUMES SI.2	-ORBITER BASE	.900	999.000	10.000	5.000

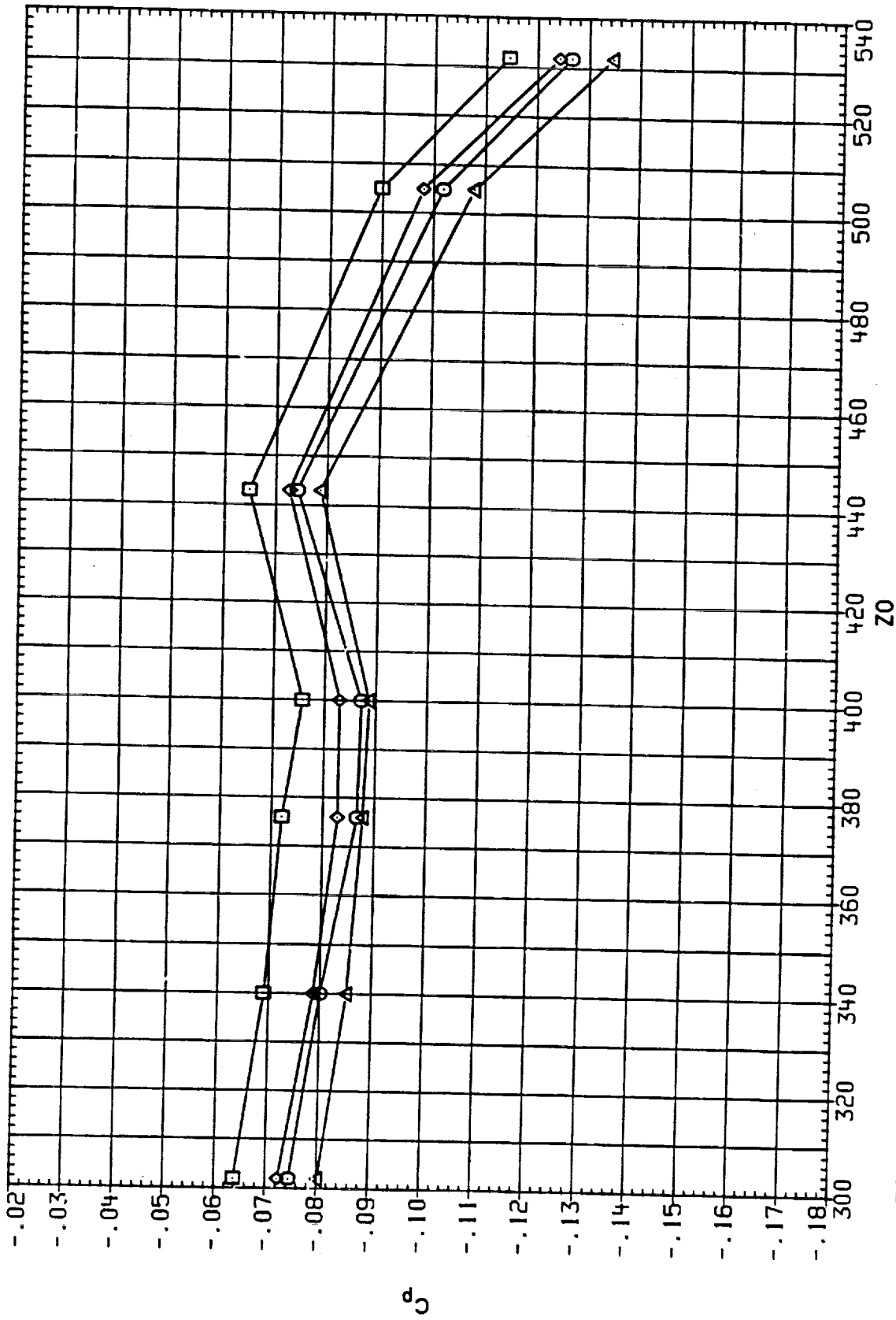


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE18)	□	IA613A,B/L OT+RSRM+PLUMES 51.2	.950	.000	10.000	9.000
(RCOE45)	○	IA613A,B/L OT+ASRM+PLUMES 51.2	.950	.000	10.000	9.000
(RCOE83)	◇	IA613A,B/L OT+ASRM+PLUMES 51.2	.950	180.000	10.000	9.000

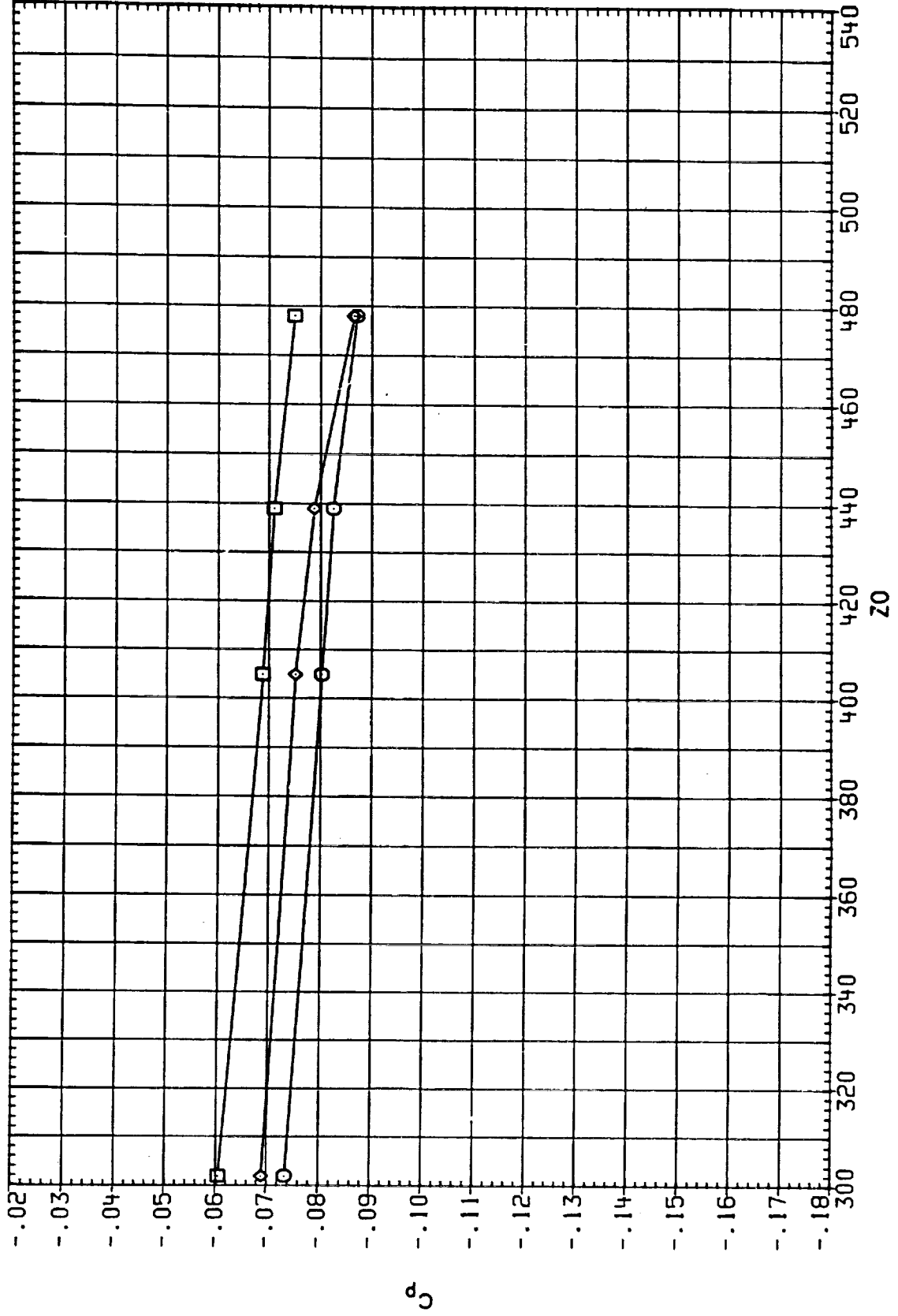


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOE18)	○	IA613A.B/L OT*PSRM*PLUMES SI.2	.950	.000	10.000	9.000
(RCOE45)	□	IA613A.B/L OT*ASRM*PLUMES SI.2	.950	.000	10.000	9.000
(RCOE83)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.950	180.000	10.000	9.000

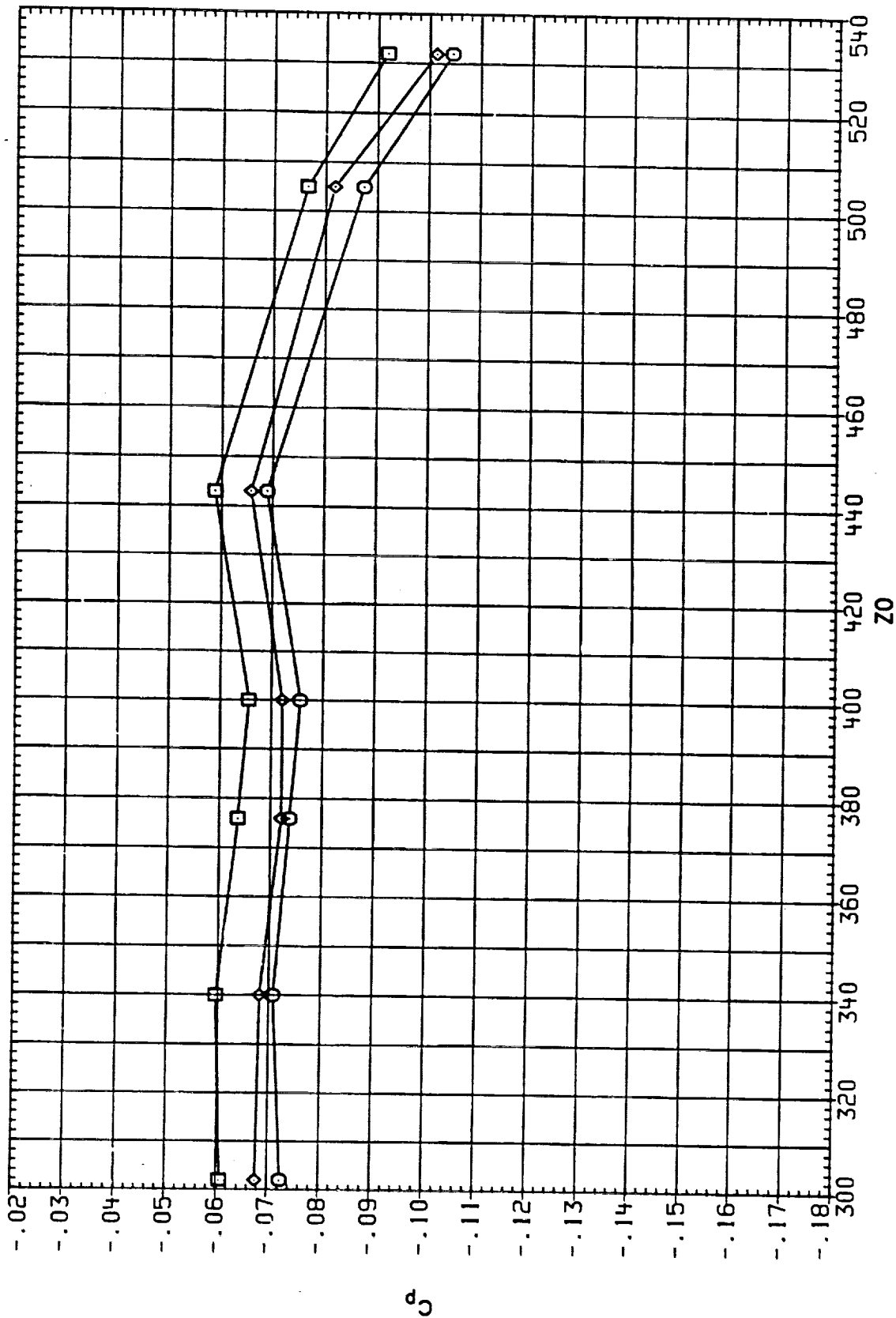


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE19)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE46)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE84)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

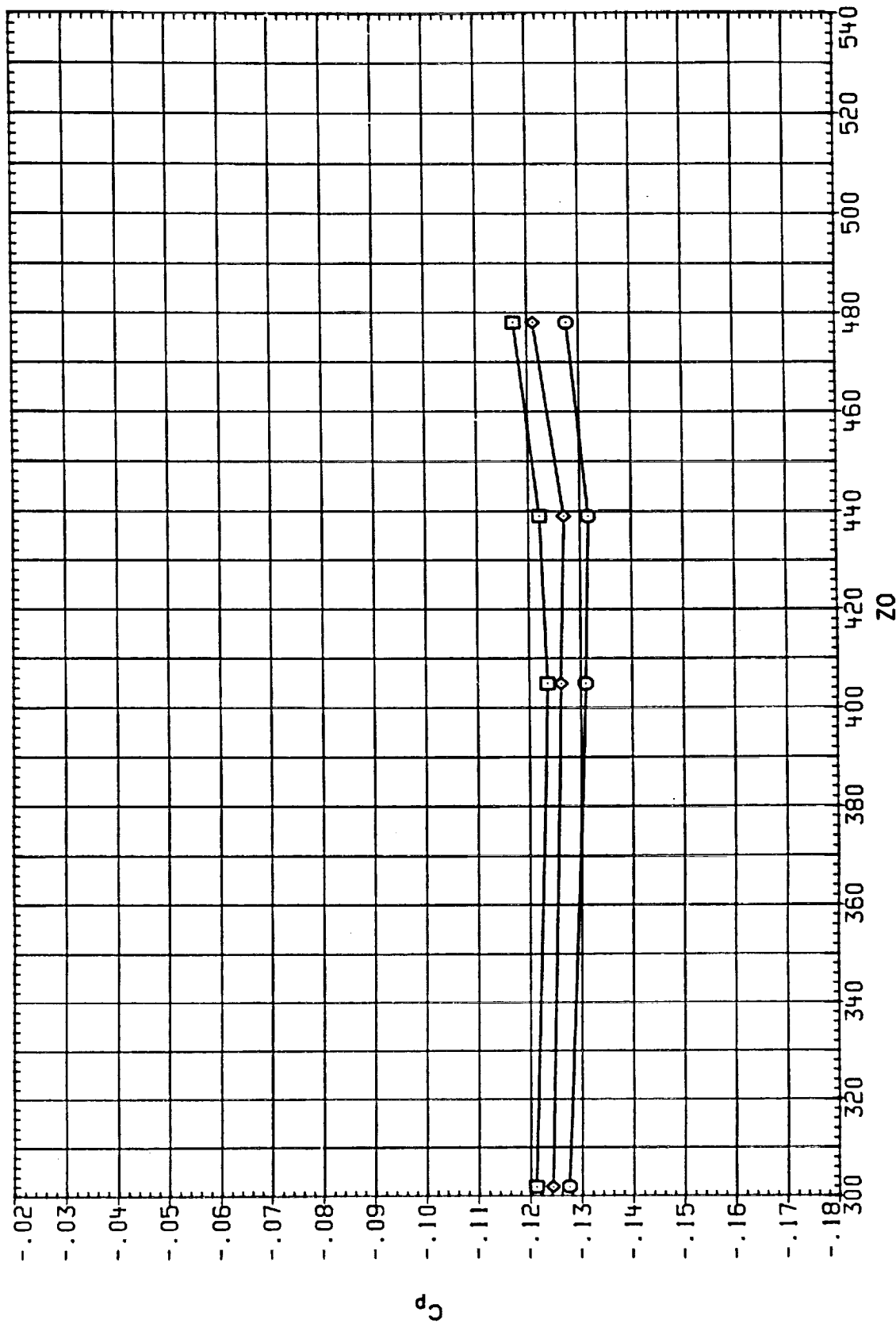


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BASE  
 BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE19)	□	IA613A, B/L OT+RSRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE46)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOE84)	○	IA613A, B/L OT+ASRM+PLUMES S1.2	1.050	180.000	10.000	9.000

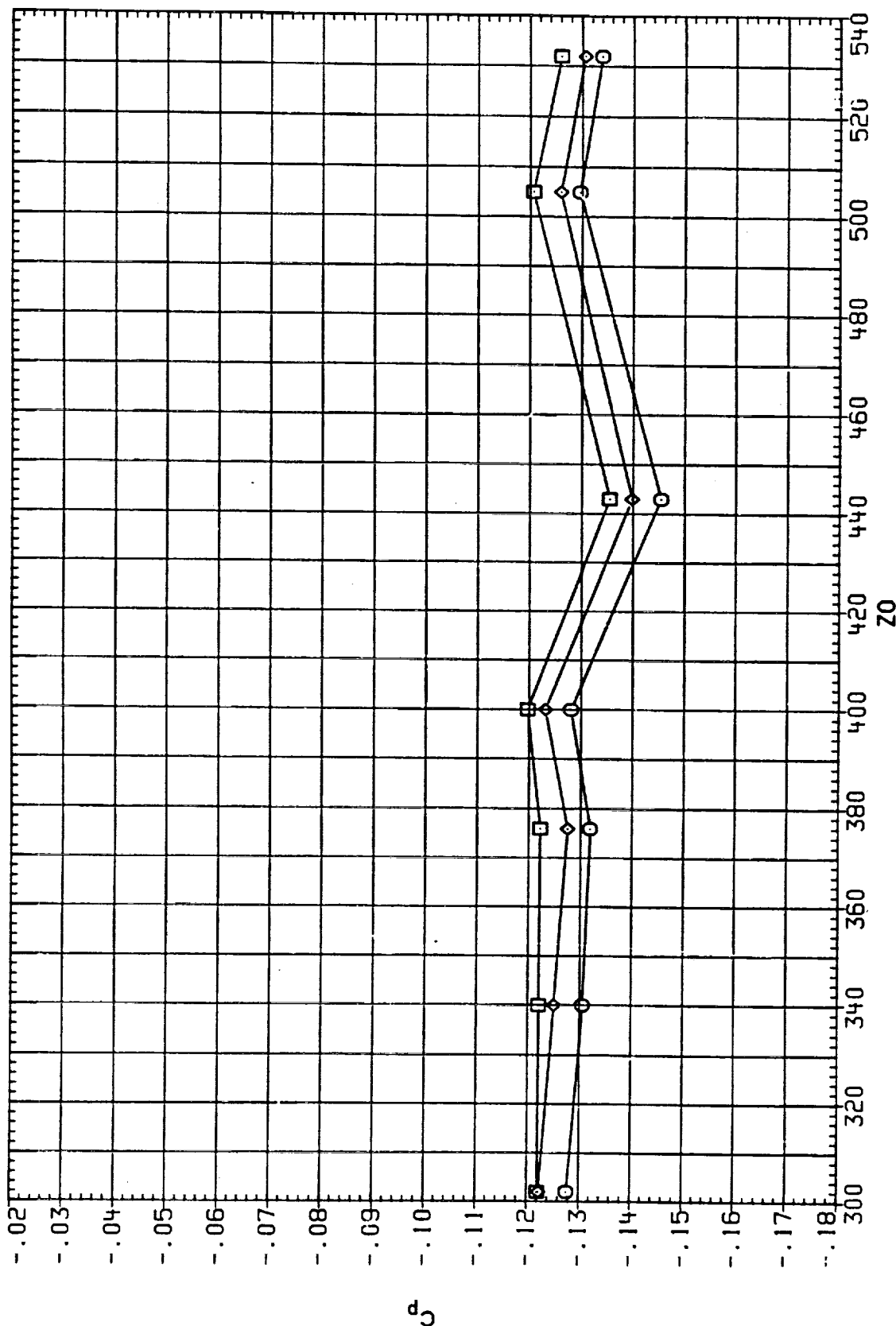


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE20)	○	IA613A, B/L OT+RSRH+PLUES S1.2	1.100	.000	10.000	9.000
(RCOE47)	□	IA613A, B/L OT+ASRH+PLUES S1.2	1.100	.000	10.000	9.000
(RCOE85)	◇	IA613A, B/L OT+ASRH+PLUES S1.2	1.100	180.000	10.000	9.000
(RCOE83)	△	IA613A, B/L OT+ASRH+PLUES S1.2	1.100	999.000	10.000	5.000

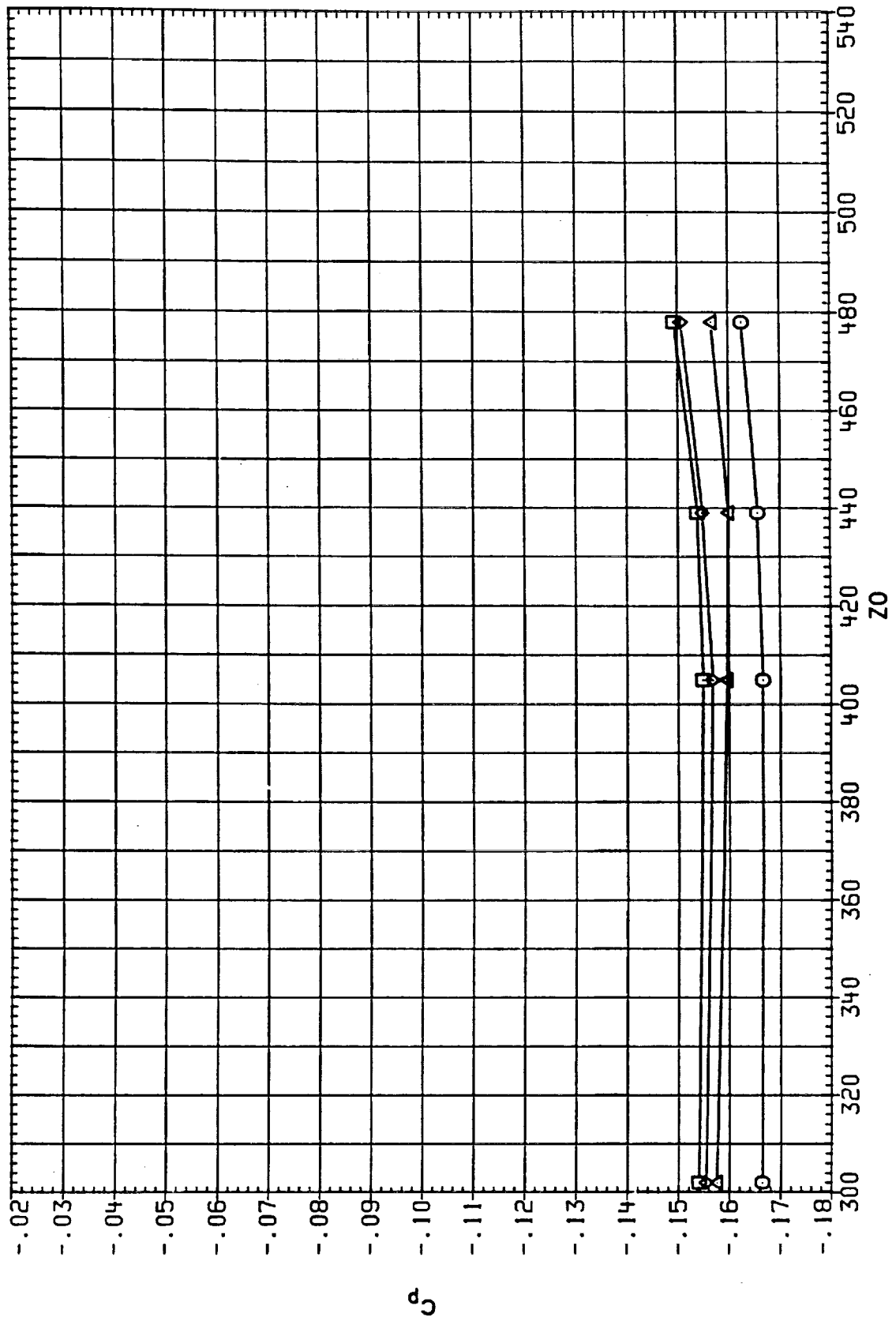


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SIMBOL	CONFIGURATION DESCRIPTION	SCALE	BASE	ORBITER BASE	ORBITER BASE	ORBITER BASE
(RCOE20)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.100	.000	-ORBITER BASE	10.000	9.000
(RCOE27)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	1.100	.000	-ORBITER BASE	10.000	9.000
(RCOE85)	△	IA613A.B/L OT+SRM+PLUMES SI.2	1.100	180.000	-ORBITER BASE	10.000	9.000
(RCOE31)	△	IA613A.B/L OT+SRM+PLUMES SI.2	1.100	999.000	-ORBITER BASE	10.000	5.000

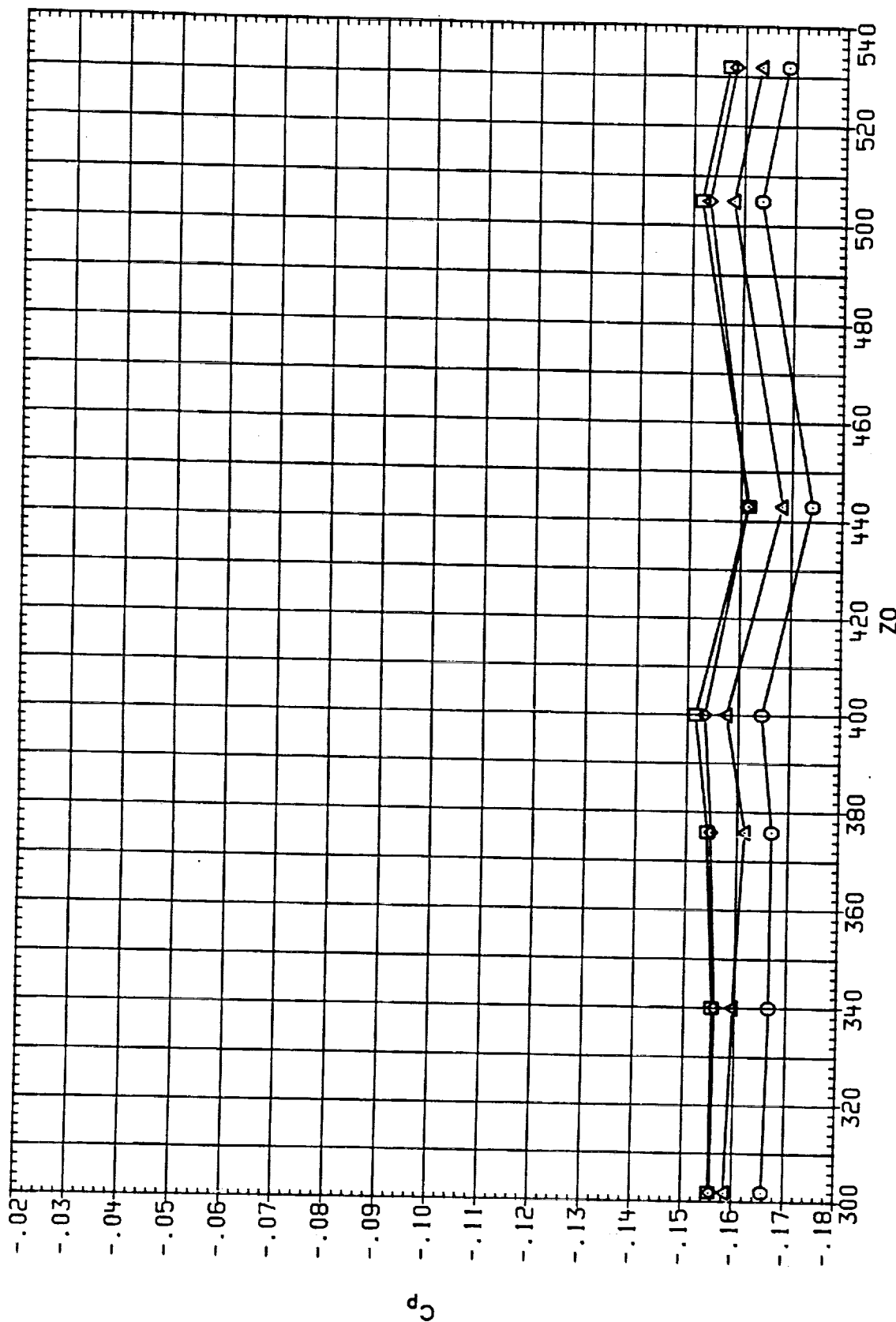


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEADBOX	IB-LLV	OB-LLV
(RCOE21)	□	IA613A,B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOE48)	◇	IA613A,B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOE86)	◇	IA613A,B/L OT+SRM+PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOEC4)	△	IA613A,B/L OT+SRM+PLUMES SI.2	1.150	999.000	10.000	5.000

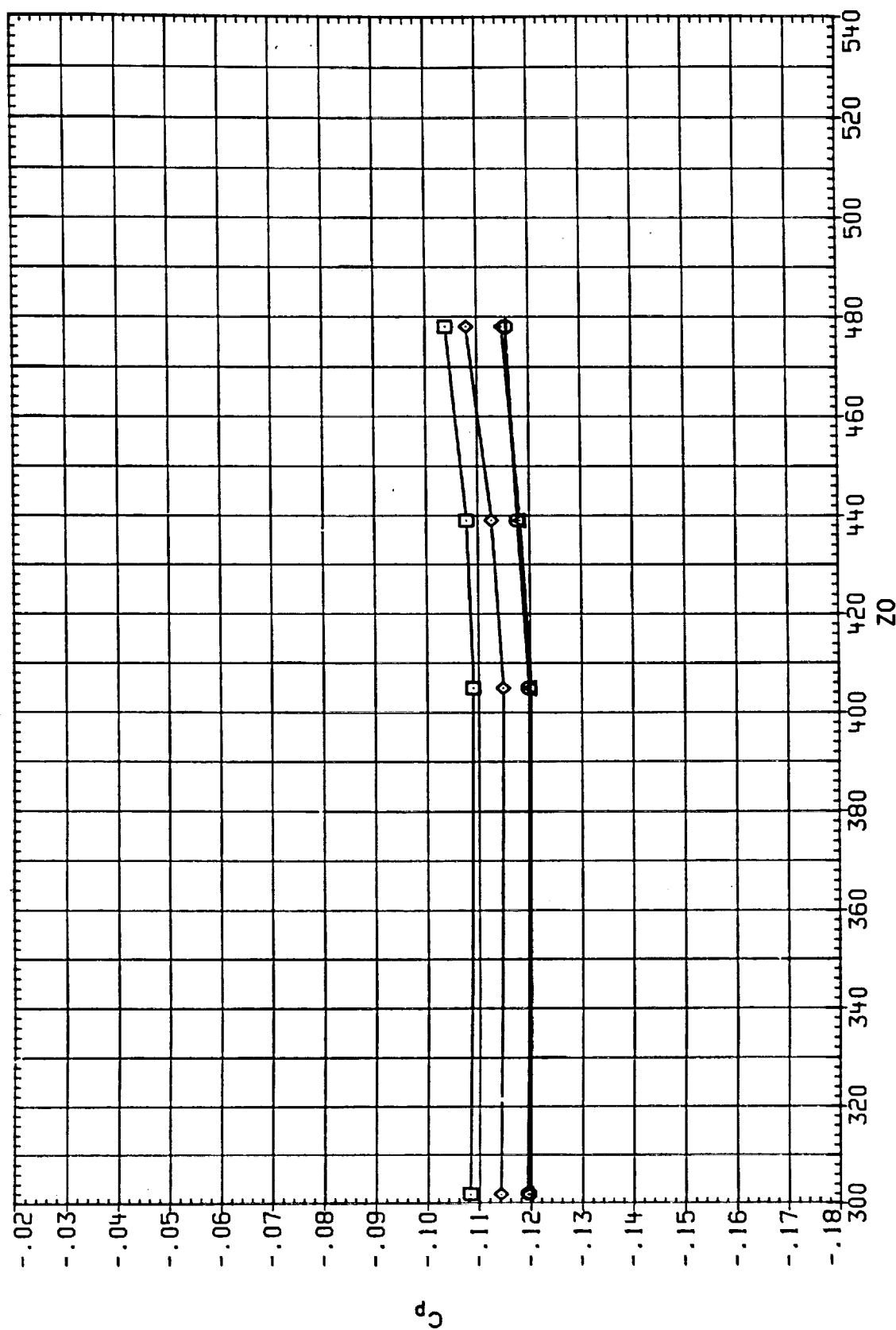


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEASOX	IB-ELV	OB-ELV
(R0021)	□	IA613A.B/L OT*PSRM*PLUMES S1.2	1.150	.000	10.000	9.000
(R0048)	□	IA613A.B/L OT*ASRM*PLUMES S1.2	1.150	.000	10.000	9.000
(R0086)	◇	IA613A.B/L OT*ASRM*PLUMES S1.2	1.150	180.000	10.000	9.000
(X00C4)	△	IA613A.B/L OT*ASRM*PLUMES S1.2	1.150	999.000	10.000	5.000

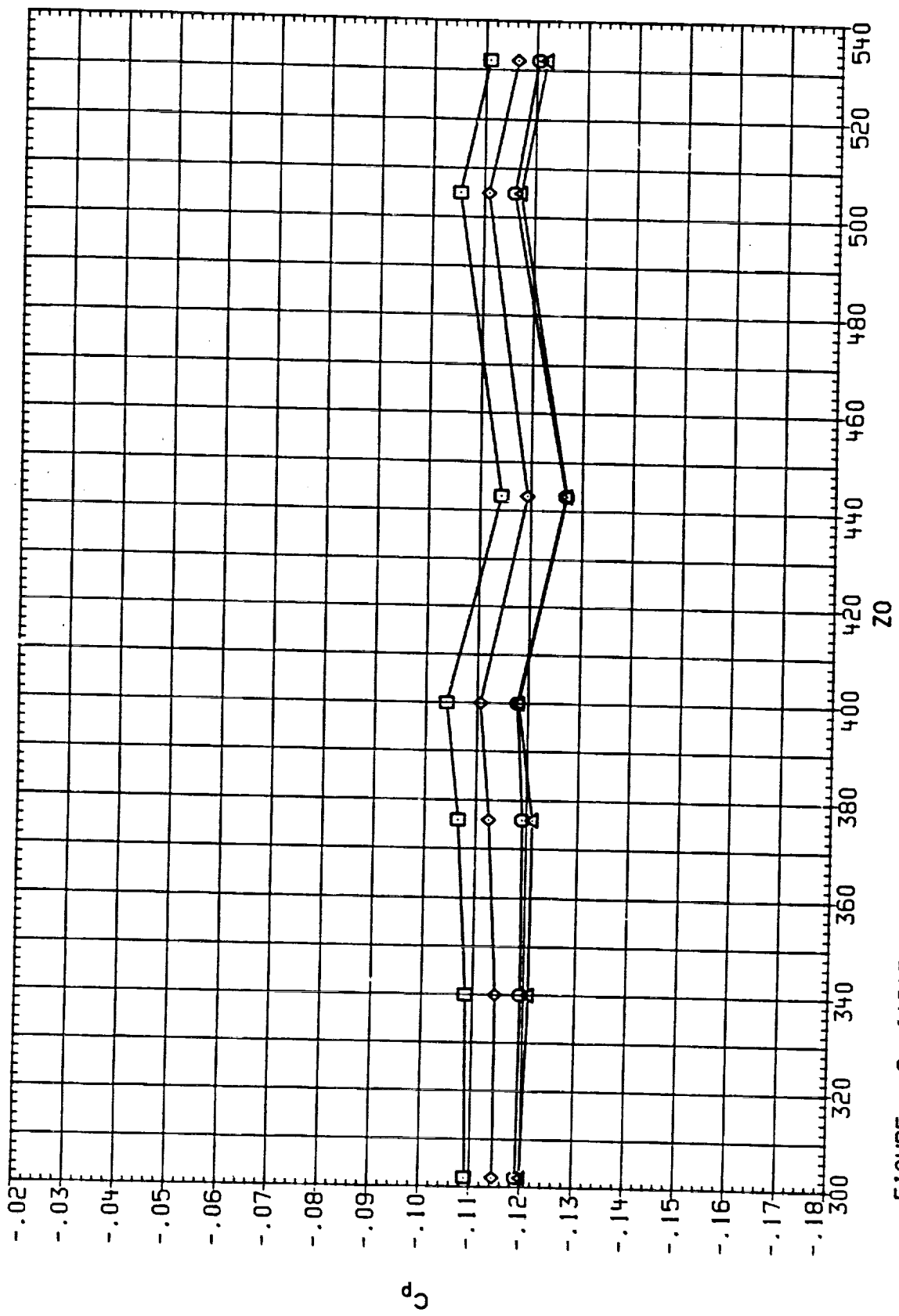


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 YO = .000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE221)	□	IA613A.8/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE491)	□	IA613A.8/L OT*ASRM*PLUMES S1.2	1.250	.000	10.000	9.000
(RCOE87)	◇	IA613A.8/L OT*ASRM*PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOECS)	△	IA613A.8/L OT*ASRM*PLUMES S1.2	1.250	999.000	10.000	5.000

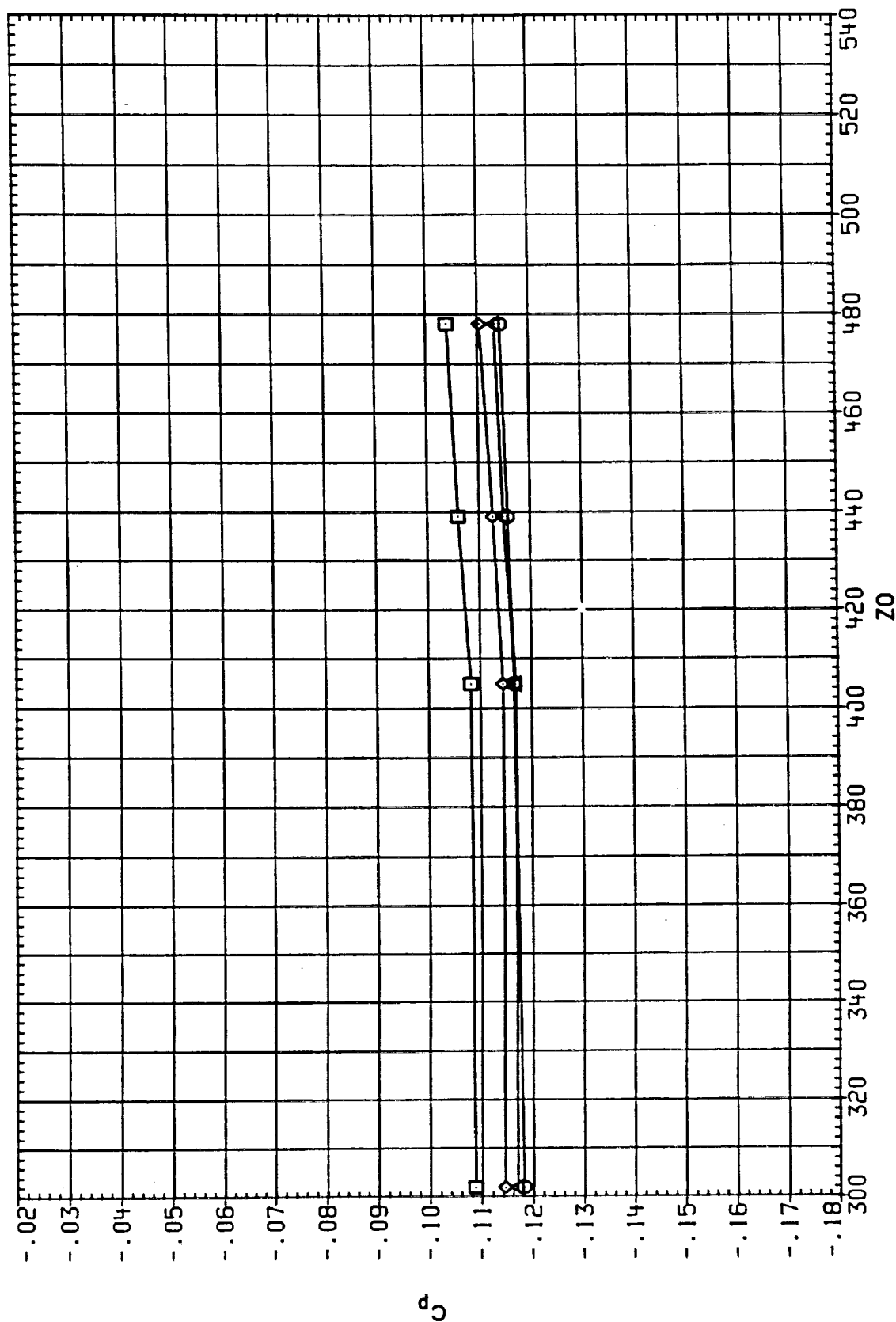


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 YO = -38.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOE22) IA613A, B/L OT\*RSRH\*PLUMES S1.2  
 (RCOE49) IA613A, B/L OT\*ASRH\*PLUMES S1.2  
 (RCOE87) IA613A, B/L OT\*ASRH\*PLUMES S1.2  
 (RCOECS) IA613A, B/L OT\*ASRH\*PLUMES S1.2

-ORBITER BASE  
 -ORBITER BASE  
 -ORBITER BASE  
 -ORBITER BASE

MACH IEABOX IB-ELV OB-ELV  
 1.250 .000 10.000 9.000  
 1.250 .000 10.000 9.000  
 1.250 180.000 10.000 9.000  
 1.250 999.000 10.000 5.000

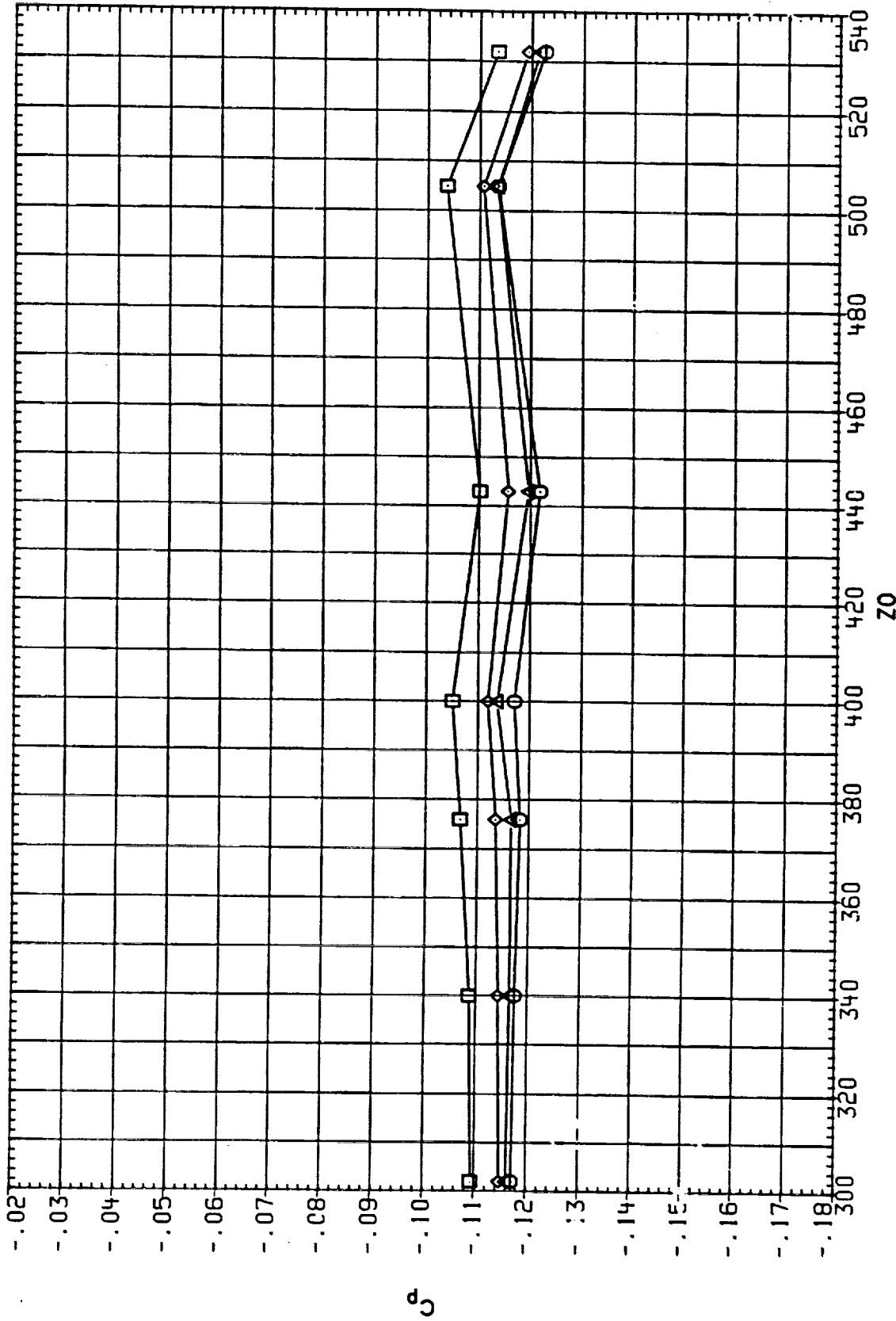


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	LEAK	IS-ELV	CS-ELV
(RCOE46)	○	IA613A, B/L OT+SRM+PLUMES SI.2	1.300	.000	10.000	9.000
(RCOE54)	□	IA613A, B/L OT+SRM+PLUMES SI.3	1.300	.000	10.000	5.000
(RCOE89)	◇	IA613A, B/L OT+SRM+PLUMES SI.3	1.300	180.000	10.000	5.000
(RCOE87)	△	IA613A, B/L OT+SRM+PLUMES SI.3	1.300	999.000	10.000	5.000

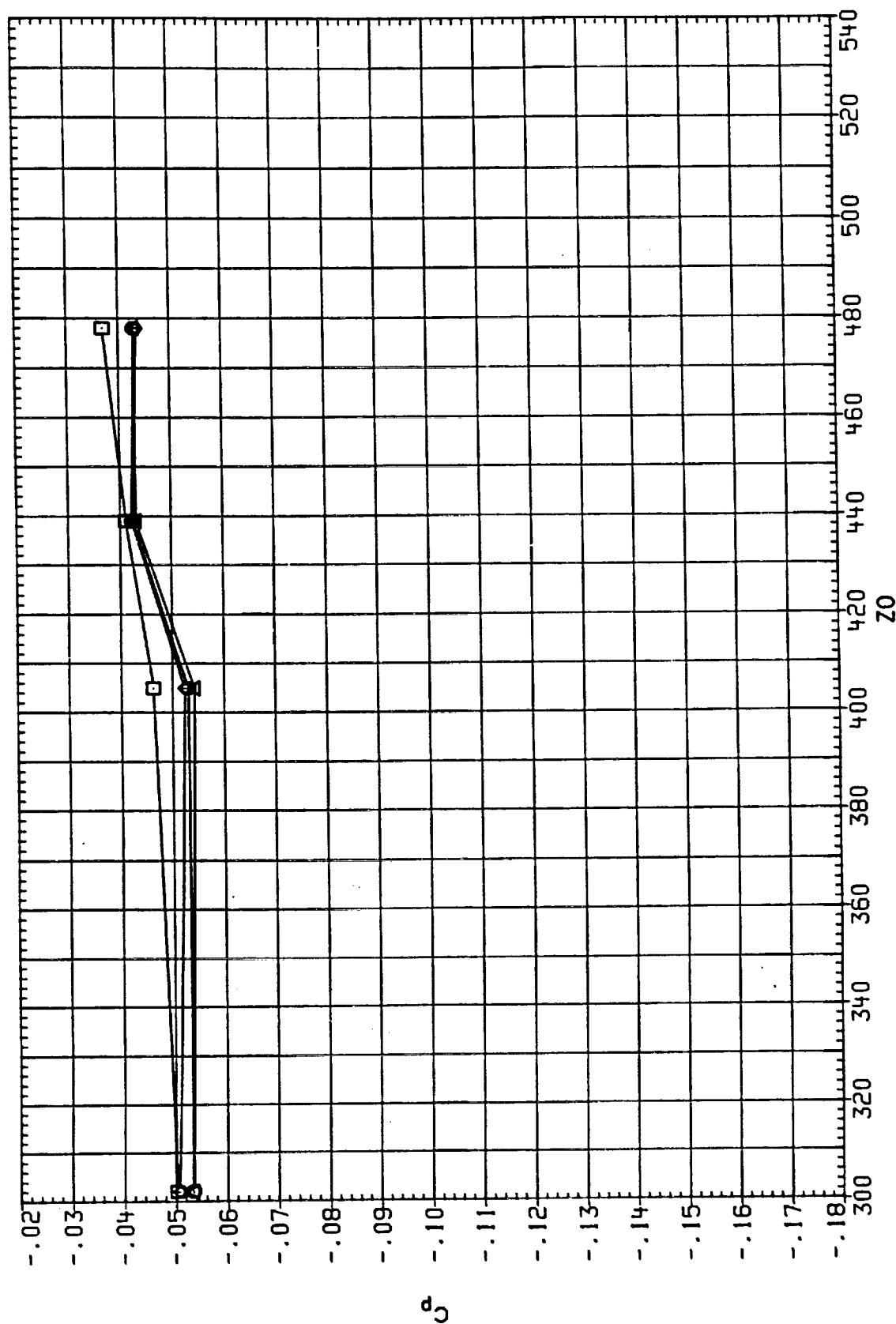


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BASE  
 BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION  
 (RCOE46) □ IAG13A.B/L OT\*ASRM\*PLUMES SI.2  
 (RCOE54) □ IAG13A.B/L OT\*ASRM\*PLUMES SI.3  
 (RCOE89) △ IAG13A.B/L OT\*ASRM\*PLUMES SI.3  
 (RCOE7) △ IAG13A.B/L OT\*ASRM\*PLUMES SI.3

MACH IE4BOX IB-ELV OB-ELV  
 1.300 .000 10.000 9.000  
 1.300 .000 10.000 5.000  
 1.300 180.000 10.000 5.000  
 1.300 999.000 10.000 5.000

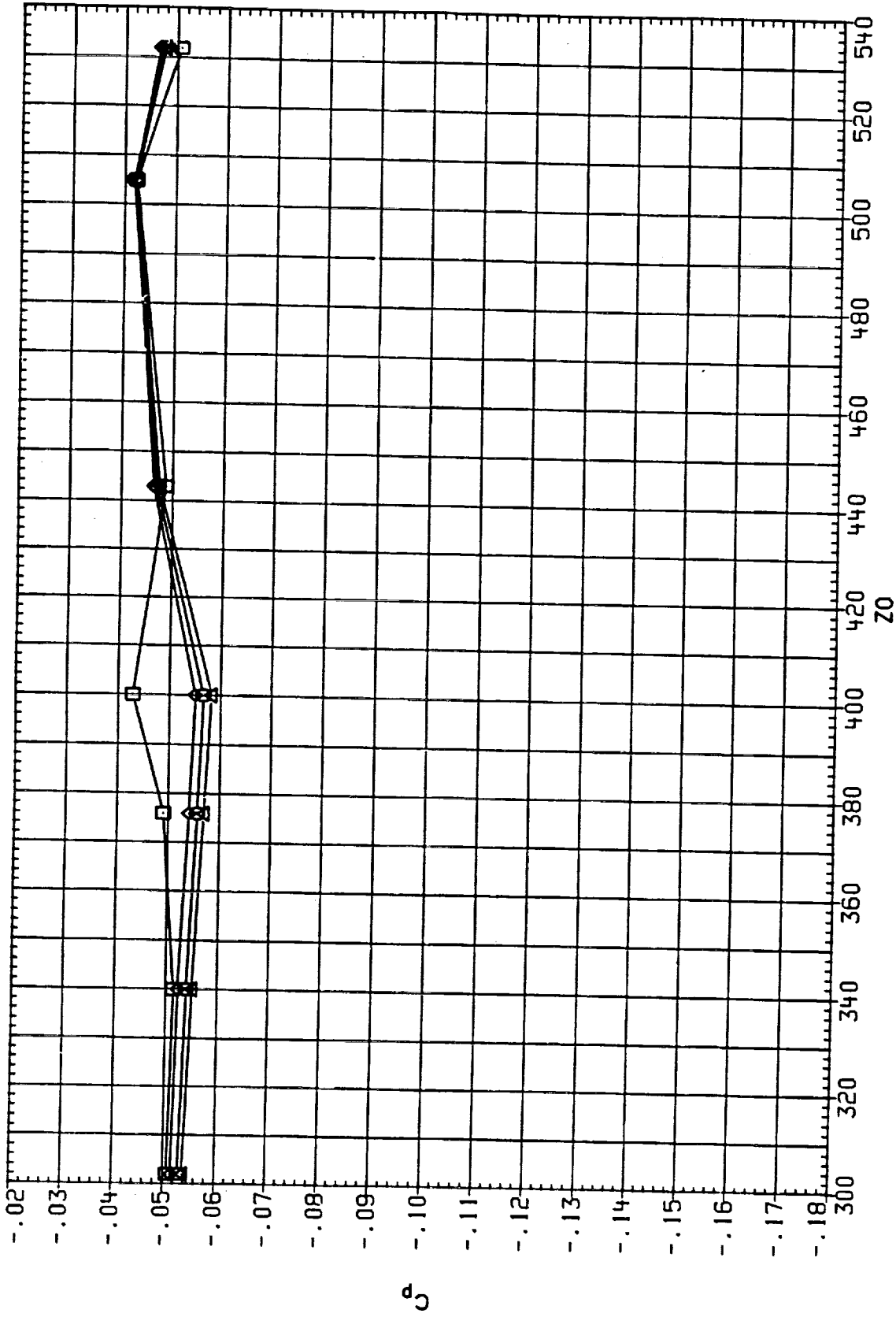


FIGURE 2 IAG13A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE7)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOE55)	□	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOE90)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOE8)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.350	999.000	10.000	5.000
		-ORBITER BASE				
		-ORBITER BASE				
		-ORBITER BASE				

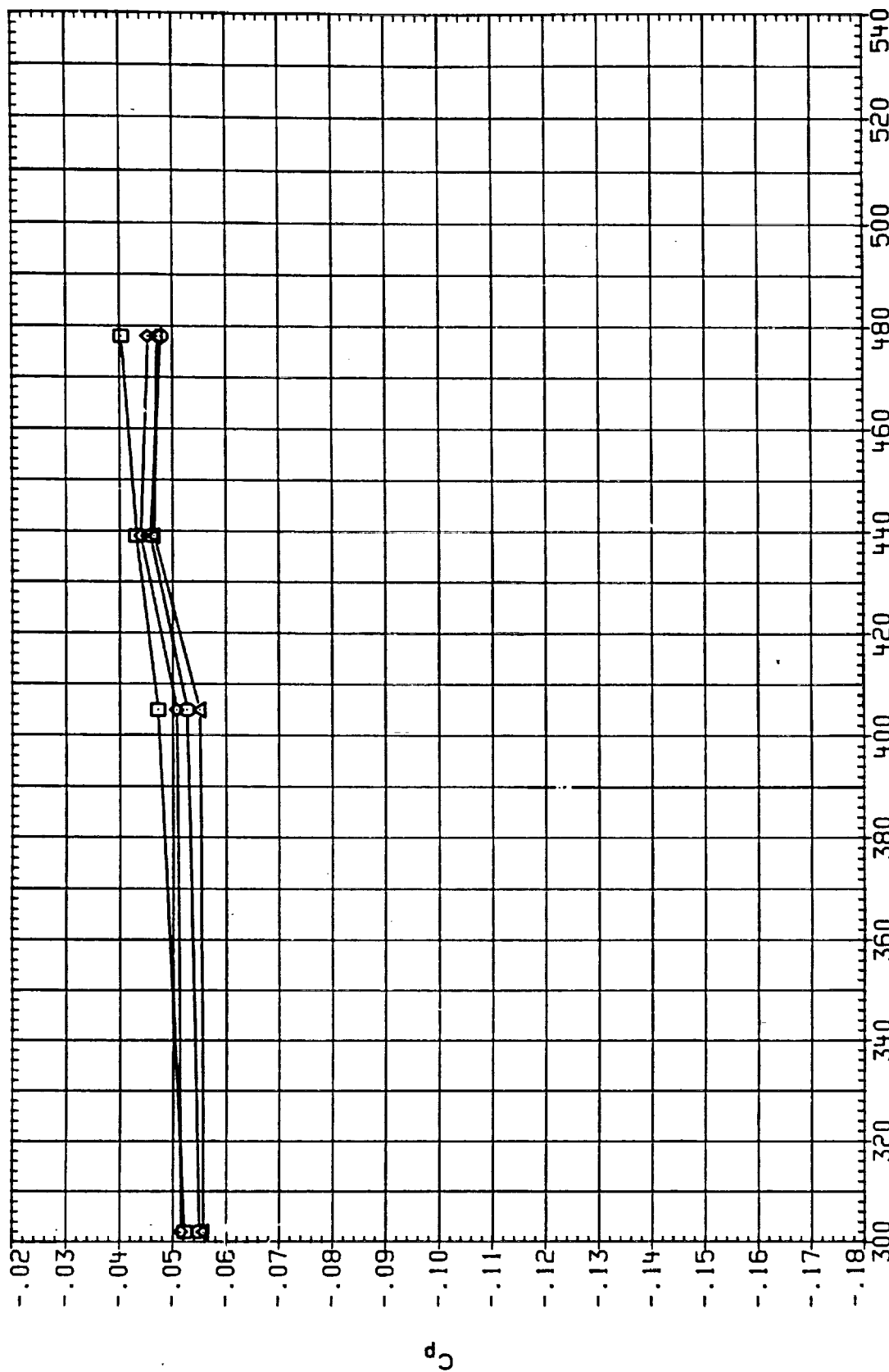


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BASE  
BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE7)	○	IA613A.B/L OT+SRM+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOE5)	□	IA613A.B/L OT+SRM+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOE9)	◇	IA613A.B/L OT+SRM+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOE8)	△	IA613A.B/L OT+SRM+PLUMES S1.3	1.350	999.000	10.000	5.000

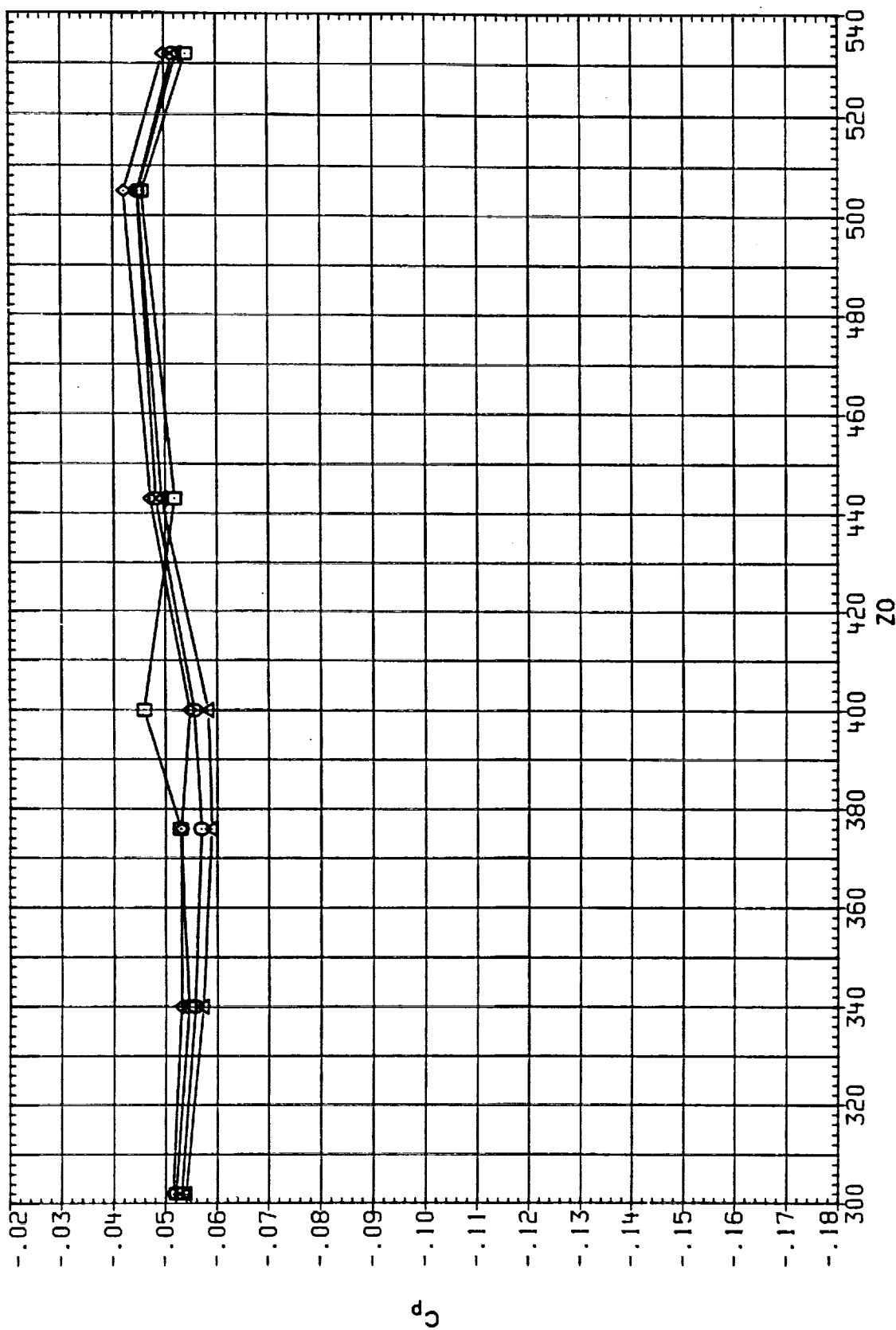


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BASE

BETA = .000    Y0 = .000    ALPHA = .000    PAGE 44

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE81)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	1.400	.000	10.000	9.000
(RCOE56)	○	IA613A.B/L OT+ASRM+PLUMES SI.3	1.400	.000	10.000	5.000
(RCOE91)	◇	IA613A.B/L OT+ASRM+PLUMES SI.3	1.400	180.000	10.000	5.000
(RCOE93)	△	IA613A.B/L OT+ASRM+PLUMES SI.3	1.400	999.000	10.000	5.000

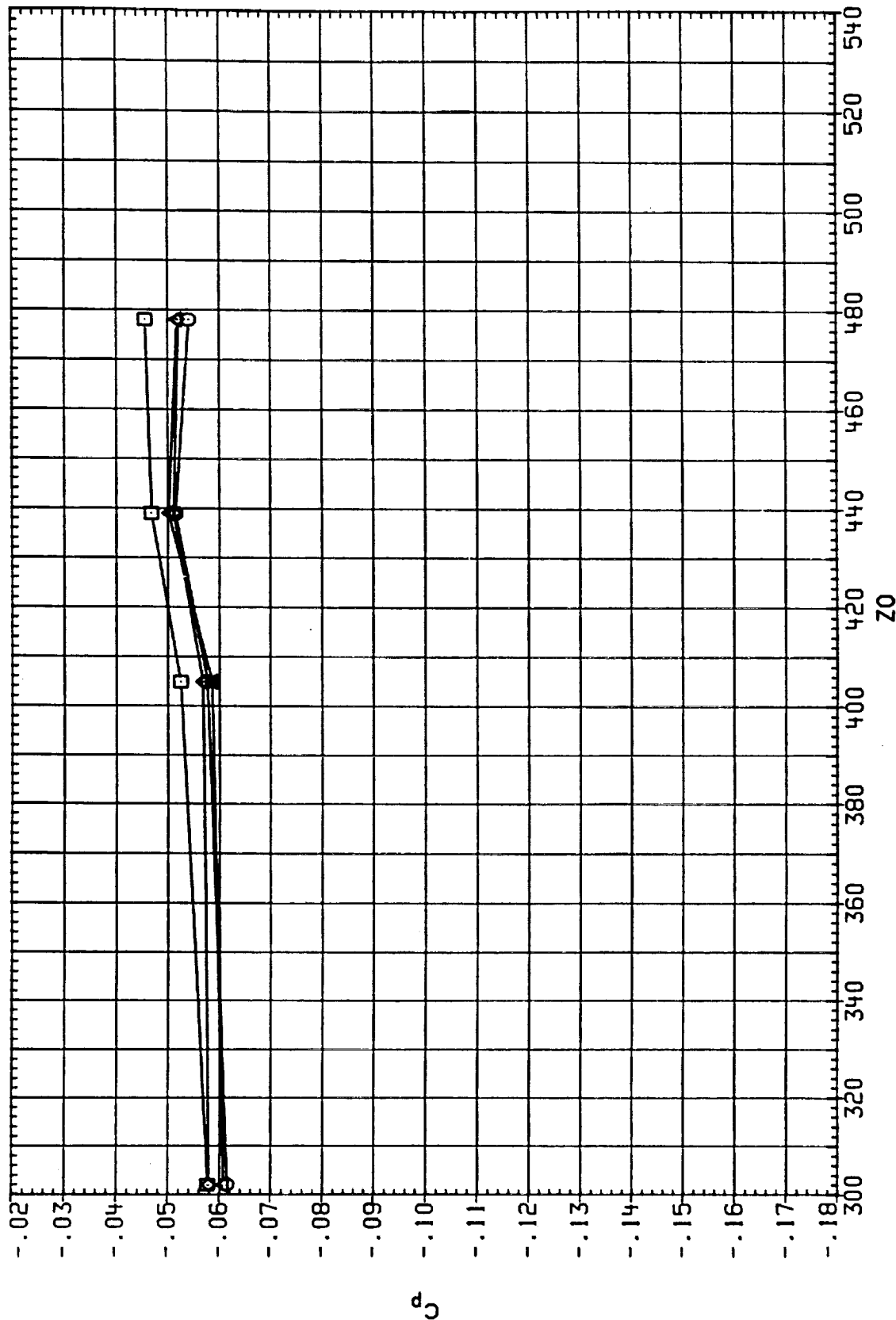


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBITER BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE8)	C	IA613A.B/L 01.RSRH.PLUMES SI.2	-ORBITER BASE	1.400	.000	10.000	9.000
(RCOE56)	C	IA613A.B/L 01.ASRH.PLUMES SI.3	-ORBITER BASE	1.400	.000	10.000	5.000
(RCOE91)	C	IA613A.B/L 01.ASRH.PLUMES SI.3	-ORBITER BASE	1.400	180.000	10.000	5.000
(RCOE9)	Δ	IA613A.B/L 01.ASRH.PLUMES SI.3	-ORBITER BASE	1.400	999.000	10.000	5.000

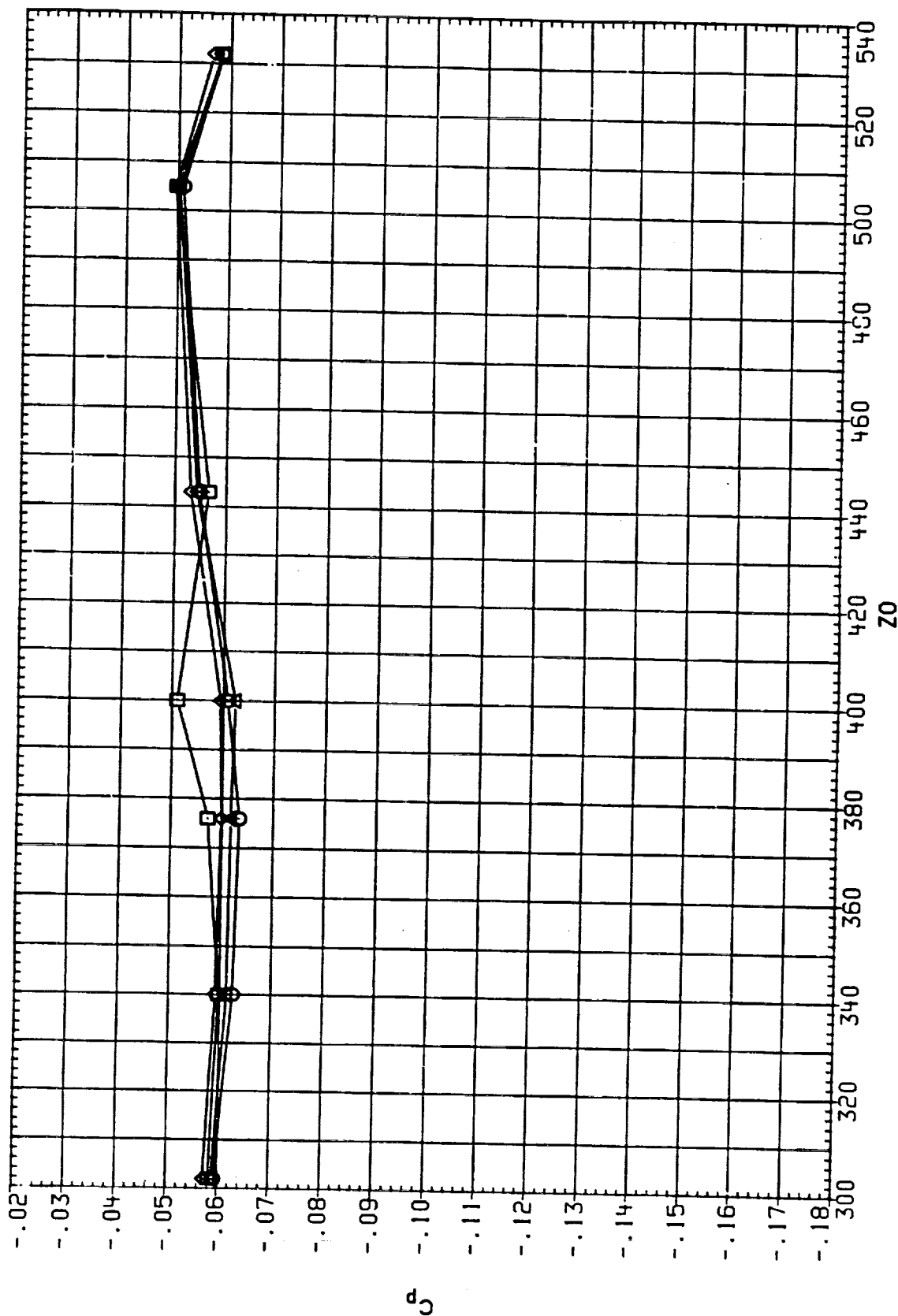


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 YO = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	ORBITER BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOE91)	○	IA613A,B/L 01+RSRM+PLUMES S1.2	-ORBITER BASE	1.550	.000	10.000	9.000
(RCOE57)	◇	IA613A,B/L 01+ASRM+PLUMES S1.3	-ORBITER BASE	1.550	.000	10.000	5.000
(RCOE92)	△	IA613A,B/L 01+ASRM+PLUMES S1.3	-ORBITER BASE	1.550	180.000	10.000	5.000
(RCOE00)	△	IA613A,B/L 01+ASRM+PLUMES S1.3	-ORBITER BASE	1.550	999.000	10.000	5.000

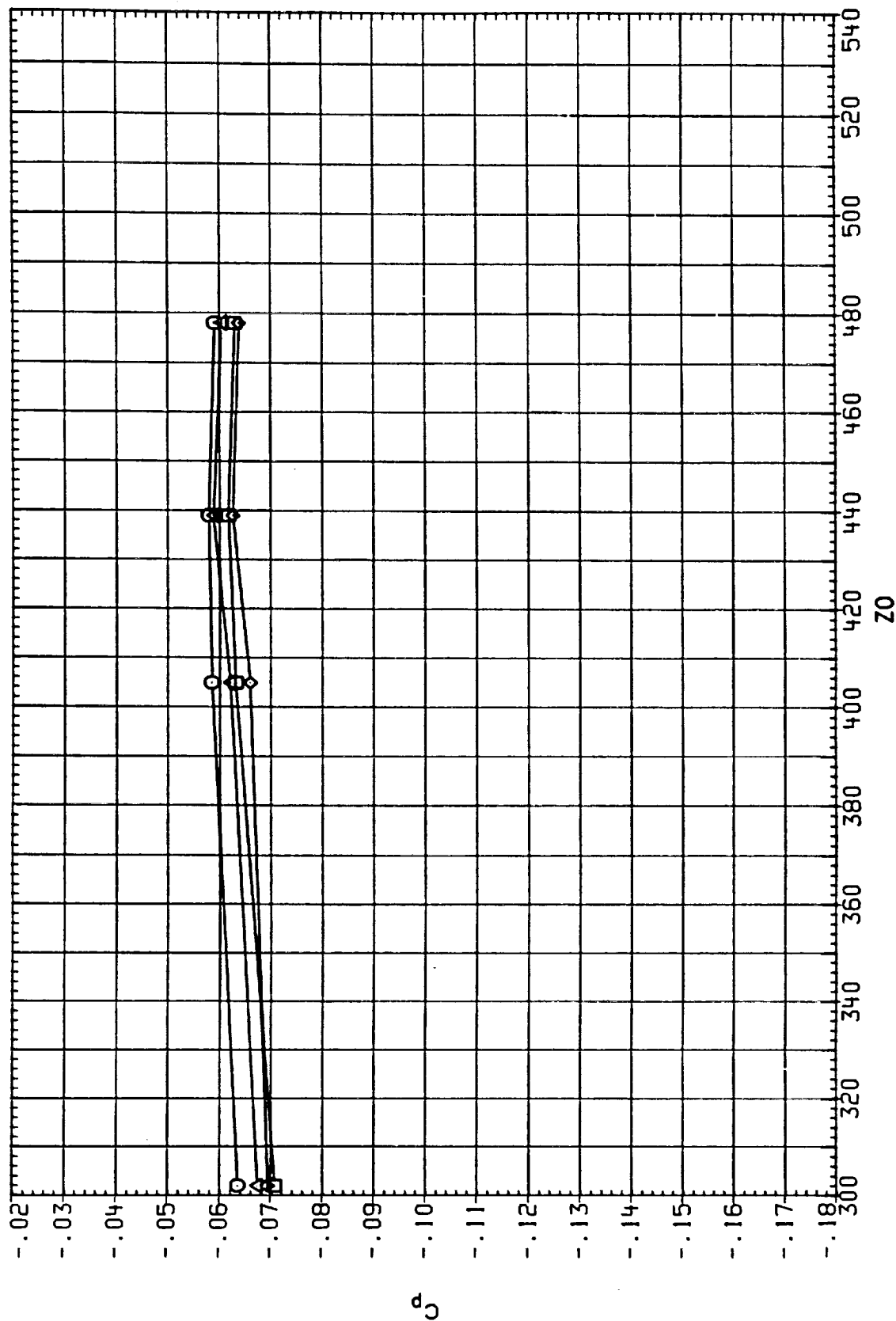


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BASE  
BETA = .000 Y0 = -38.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOE9)	○	IA613A.B/L OT*ASRM*PLUMES SI.2
(RCOE57)	◇	IA613A.B/L OT*ASRM*PLUMES SI.3
(RCOE92)	□	IA613A.B/L OT*ASRM*PLUMES SI.3
(RCOE00)	△	IA613A.B/L OT*ASRM*PLUMES SI.3

MACH IEABOX IB-CLV OB-ELV

1.550	.000	10.000	9.000
1.550	.000	10.000	5.000
1.550	180.000	10.000	5.000
1.550	999.000	10.000	5.000

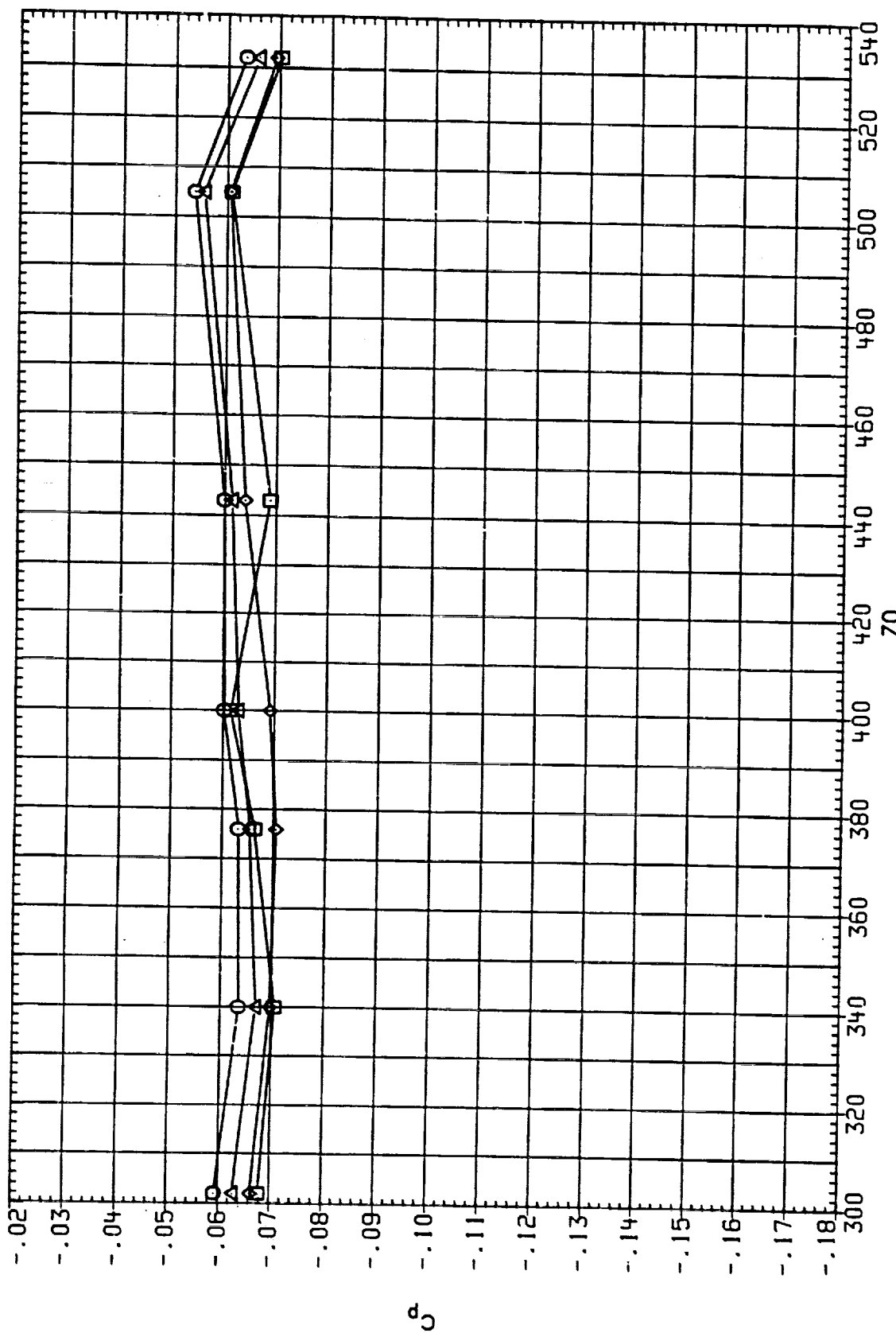


FIGURE 2 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 Y0 = .000 ORBITER BASE ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0615)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	.600	.000	10.000	9.000
(RC0642)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	.600	.000	10.000	9.000
(RC0680)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	.600	180.000	10.000	9.000
(RC06C1)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	.600	999.000	10.000	5.000

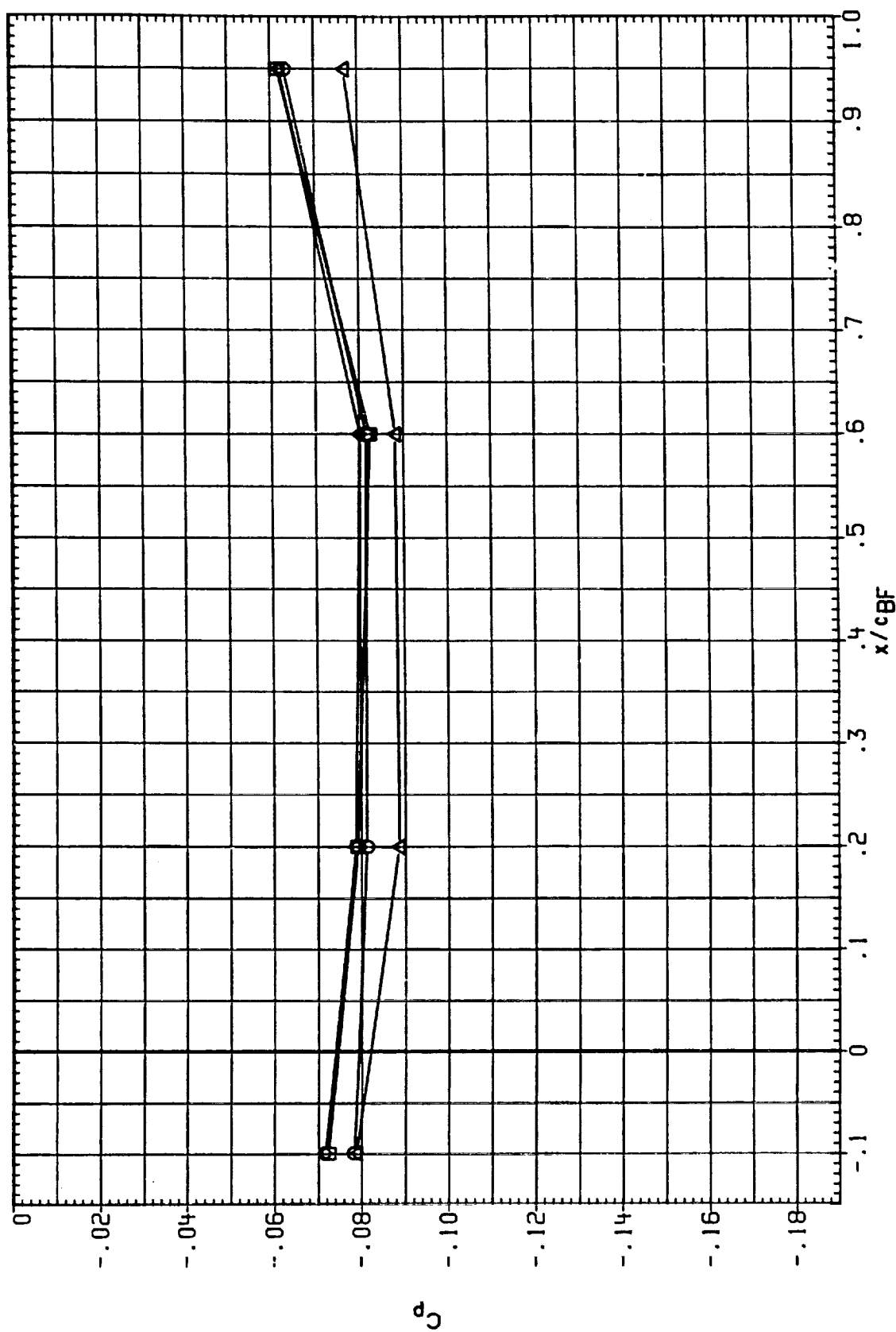


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG15)	○	IA613A,B/L OT+SRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOG12)	□	IA613A,B/L OT+SRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOG80)	◇	IA613A,B/L OT+SRM+PLUMES SI.2	.600	180.000	10.000	9.000
(RCOGC1)	△	IA613A,B/L OT+SRM+PLUMES SI.2	.600	999.000	10.000	5.000

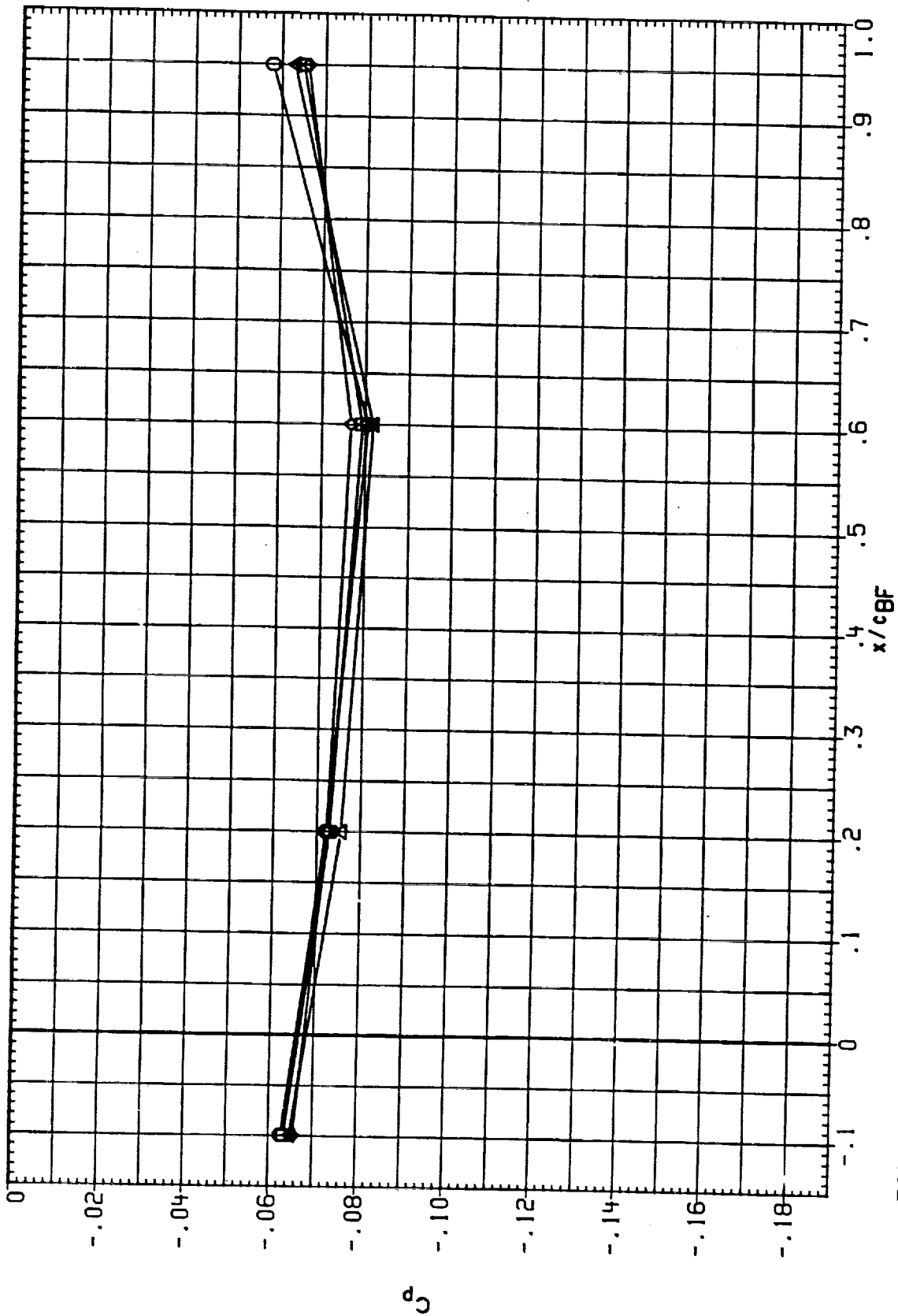


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000, ETA = .500, ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0016)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	.800	.000	10.000	9.000
(RC0043)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.800	.000	10.000	9.000
(RC0081)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.800	180.000	10.000	9.000

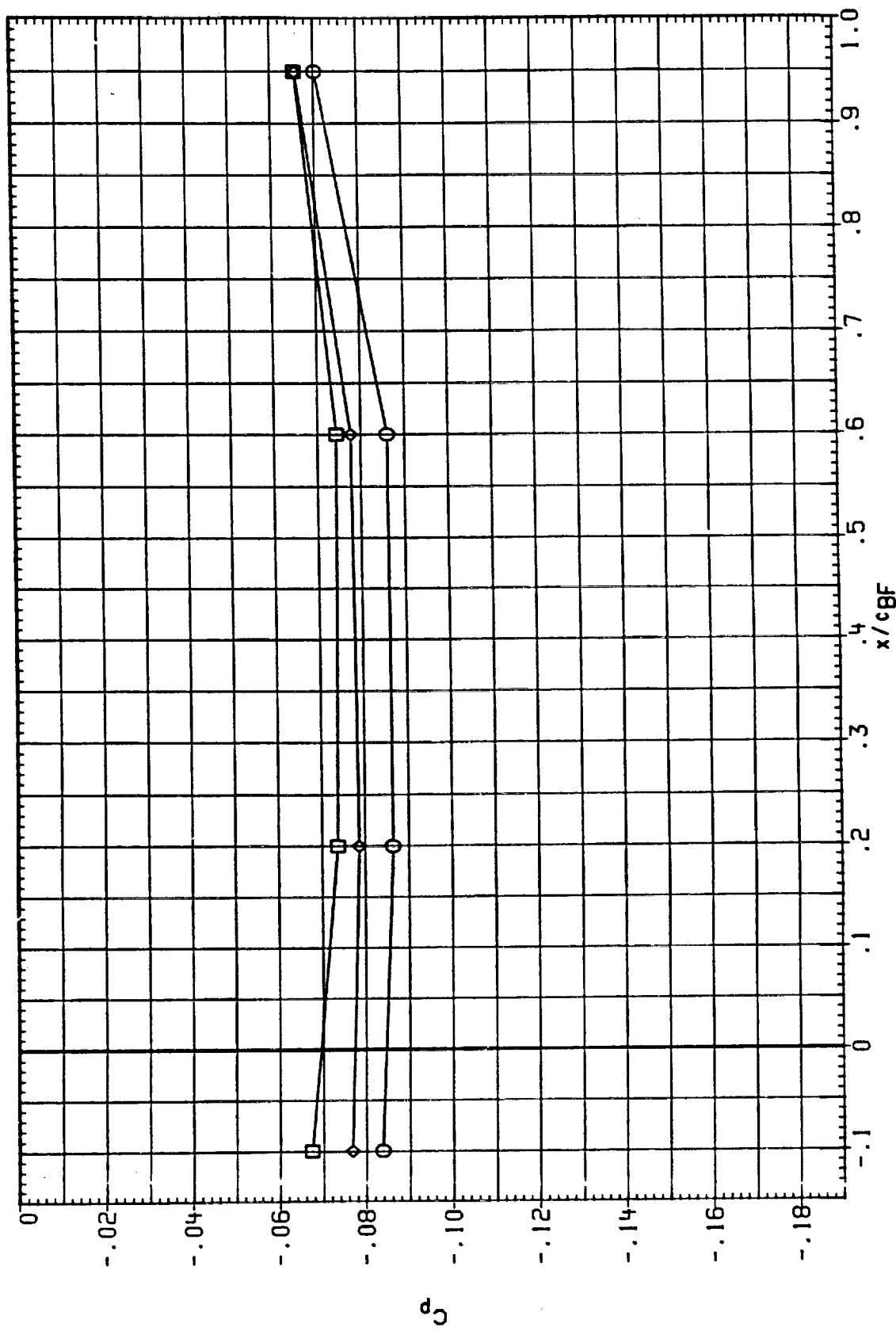


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .100    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG16)	□	IA613A.B/L OT+PSRM+PLUMES SI.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RCOG43)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2 -BODY FLAP UPPER	.800	.000	10.000	9.000
(RCOG81)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2 -BODY FLAP UPPER	.800	180.000	10.000	9.000

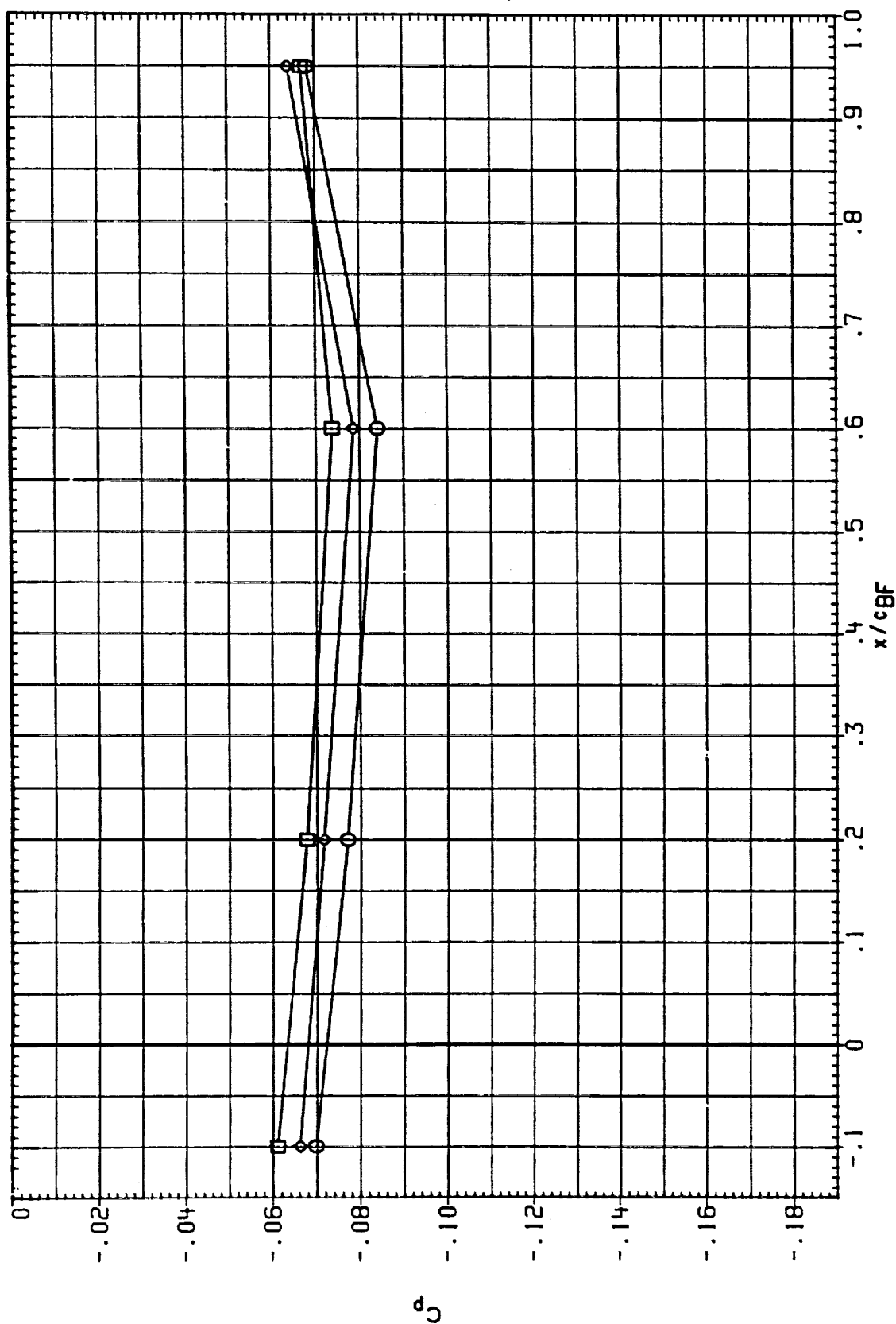


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0617)	□	IA613A, B/L 01*RSRH*PLUMES 51.2	.900	.000	10.000	9.000
(RC0644)	○	IA613A, B/L 01*ASRH*PLUMES 51.2	.900	.000	10.000	9.000
(RC0682)	△	IA613A, B/L 01*ASRH*PLUMES 51.2	.900	180.000	10.000	9.000
(RC06C2)	◇	IA613A, B/L 01*ASRH*PLUMES 51.2	.900	999.000	10.000	5.000

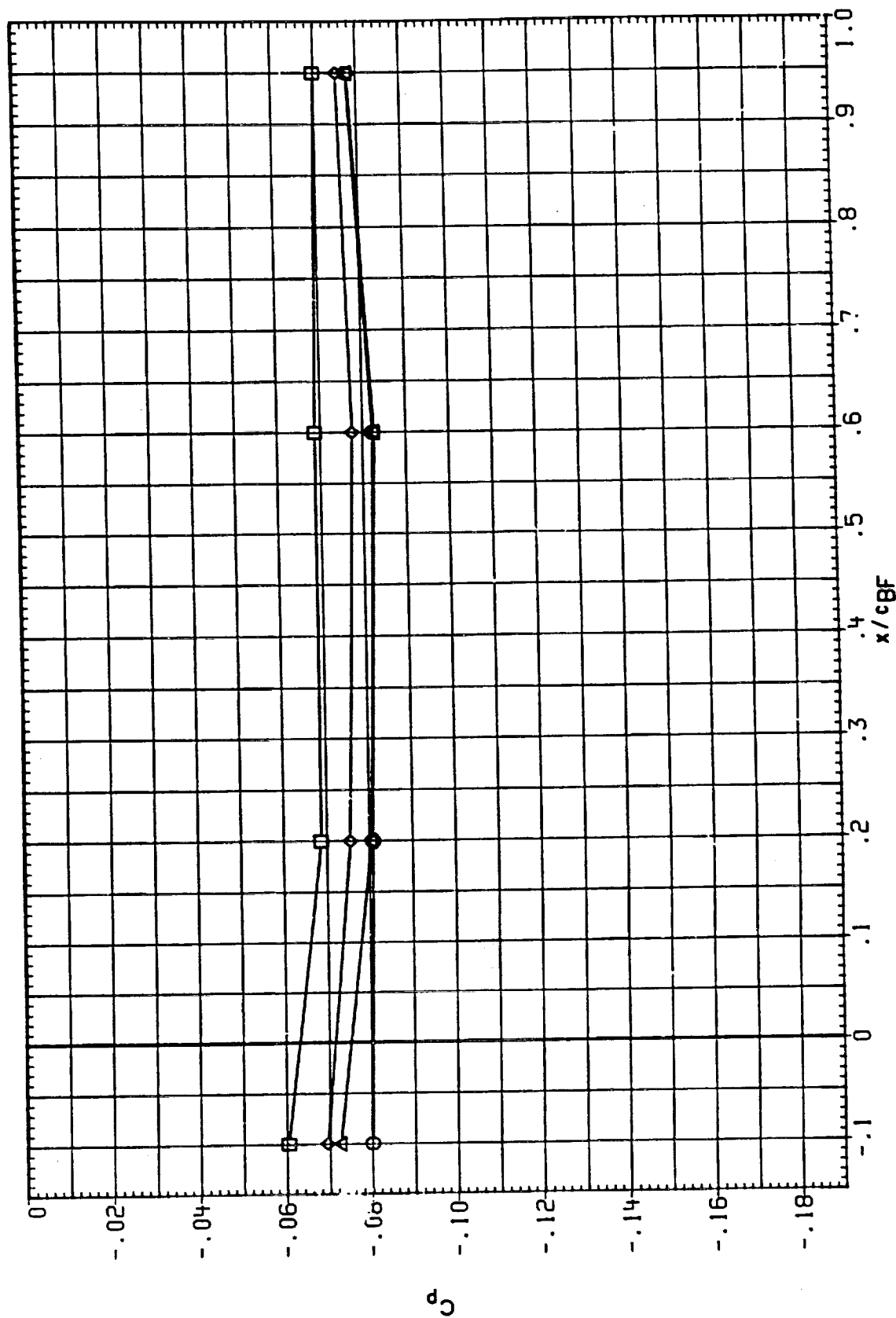


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RCOG17)	□	1A613A,B/L OT*RSRH*PLUMES S1.2	.900	.000	10.000	9.000
(RCOG44)	□	1A613A,B/L OT*ASRH*PLUMES S1.2	.900	.000	10.000	9.000
(RCOG82)	◇	1A613A,B/L OT*ASRH*PLUMES S1.2	.900	180.000	10.000	9.000
(RCOGC2)	△	1A613A,B/L OT*ASRH*PLUMES S1.2	.900	999.000	10.000	5.000

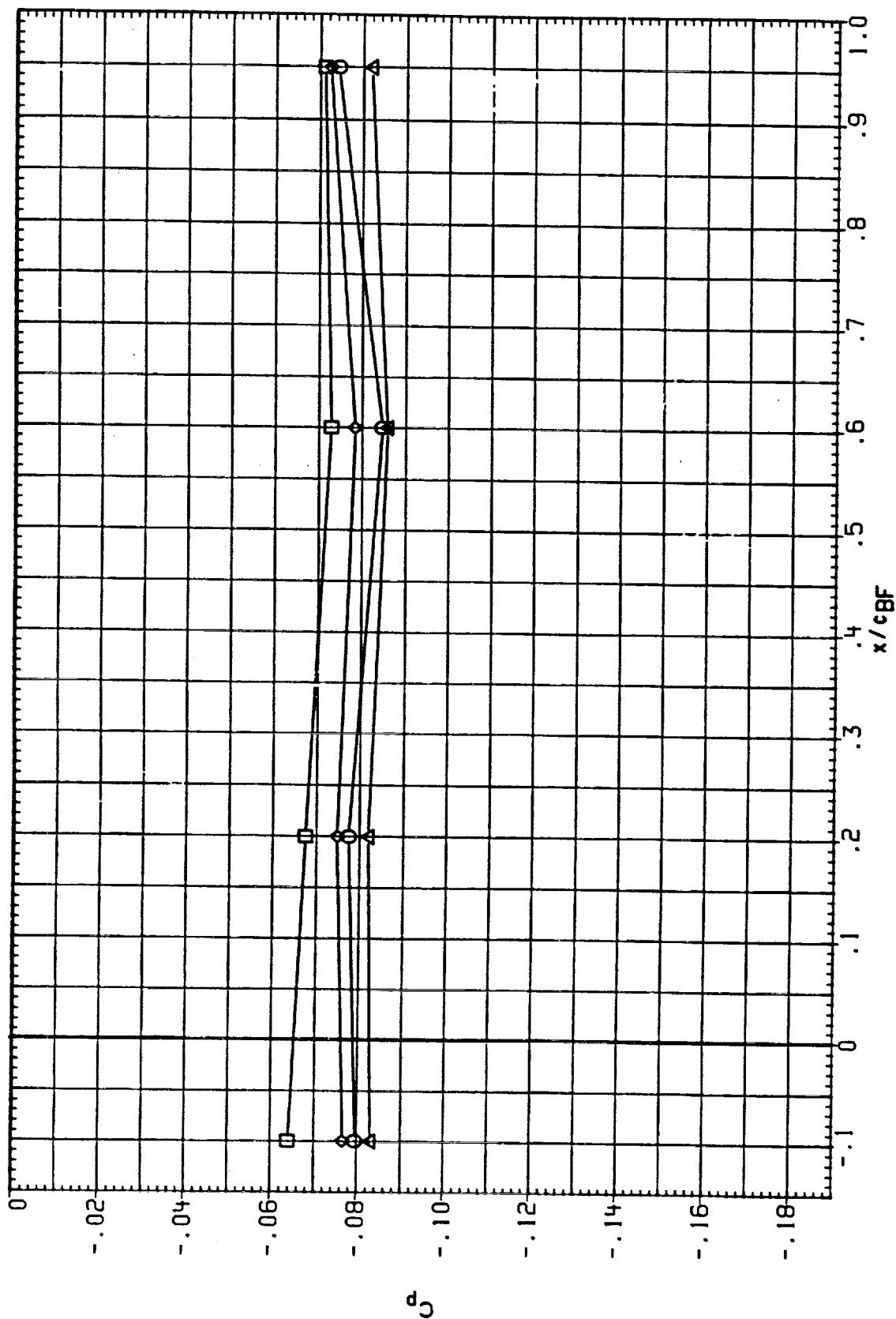


FIGURE 3 1A613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000    ETA = .500    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0618)	□	IA613A.8/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0645)	◇	IA613A.8/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	.950	.000	10.000	9.000
(RC0683)	○	IA613A.8/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	.950	180.000	10.000	9.000

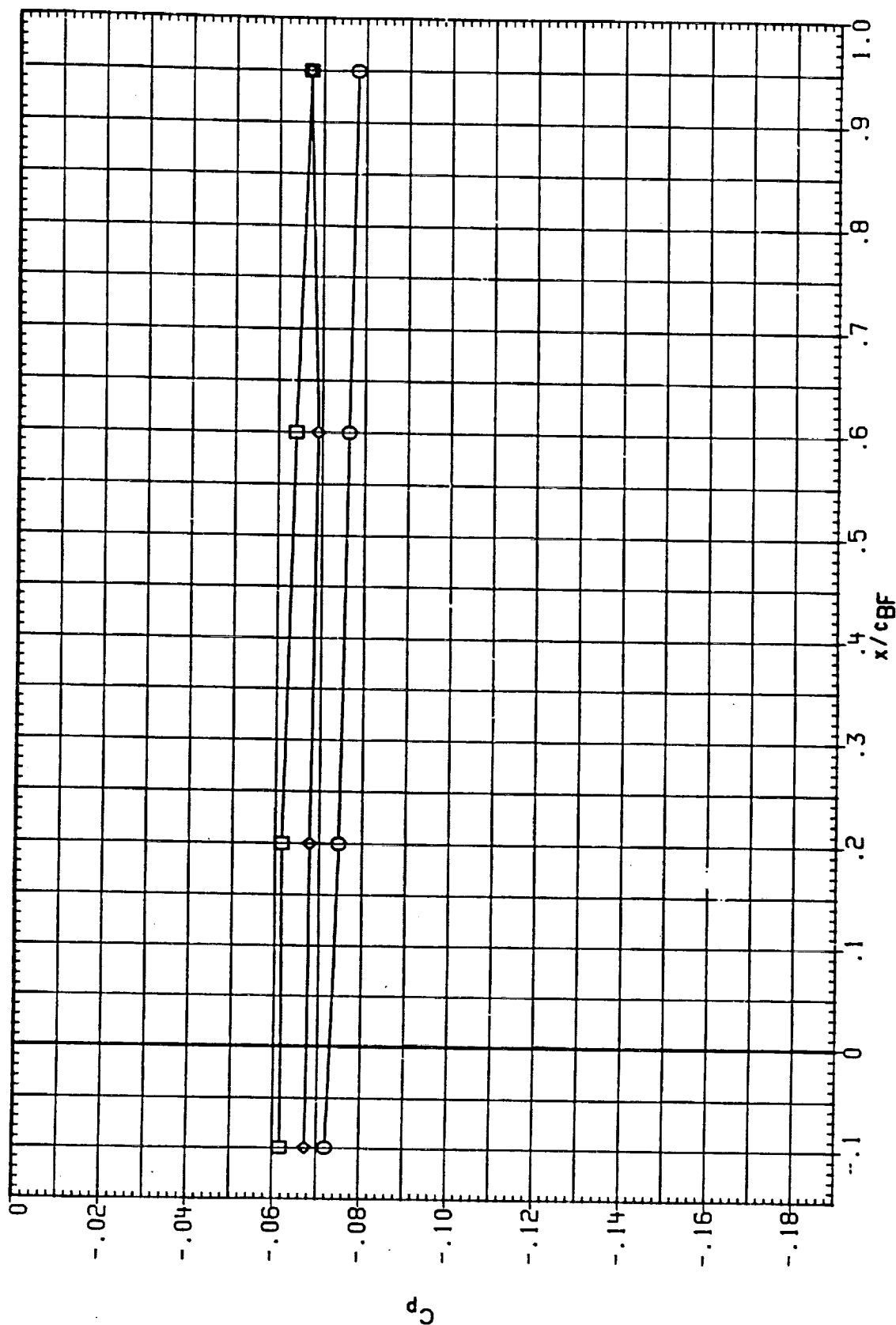


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	ICABOX	IB-ELV	OB-ELV
(RC0618)	□	IA613A.B/L OT*RSRM*PLUMES SI.2	.950	.000	10.000	9.000
(RC0645)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.950	.000	10.000	9.000
(RC0683)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.950	180.000	10.000	9.000

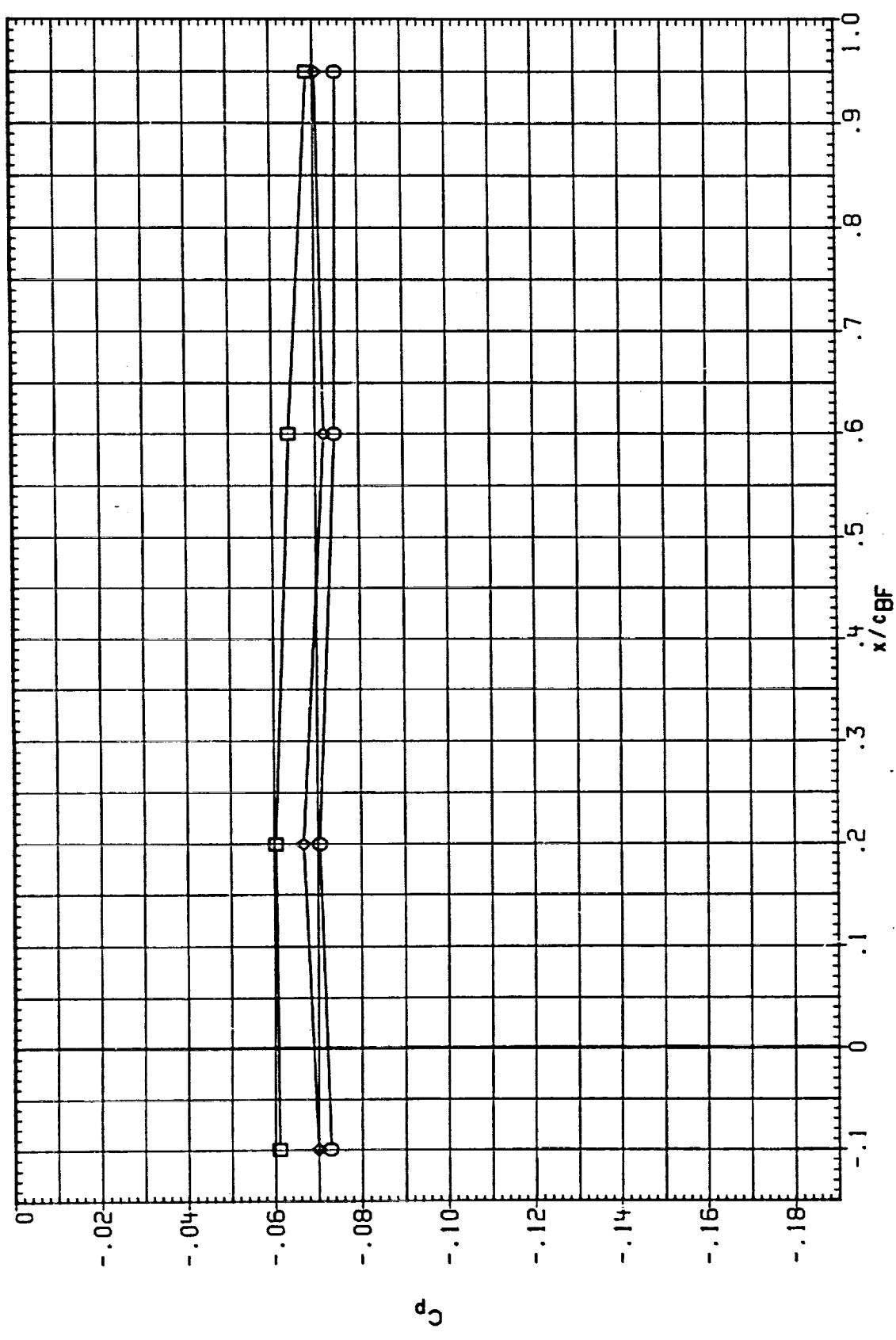


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .500    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0619)	○	IA613A, B/L OT+RSRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC0646)	○	IA613A, B/L OT+ASRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	.000	10.000	9.000
(RC0684)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -BODY FLAP UPPER	1.050	180.000	10.000	9.000

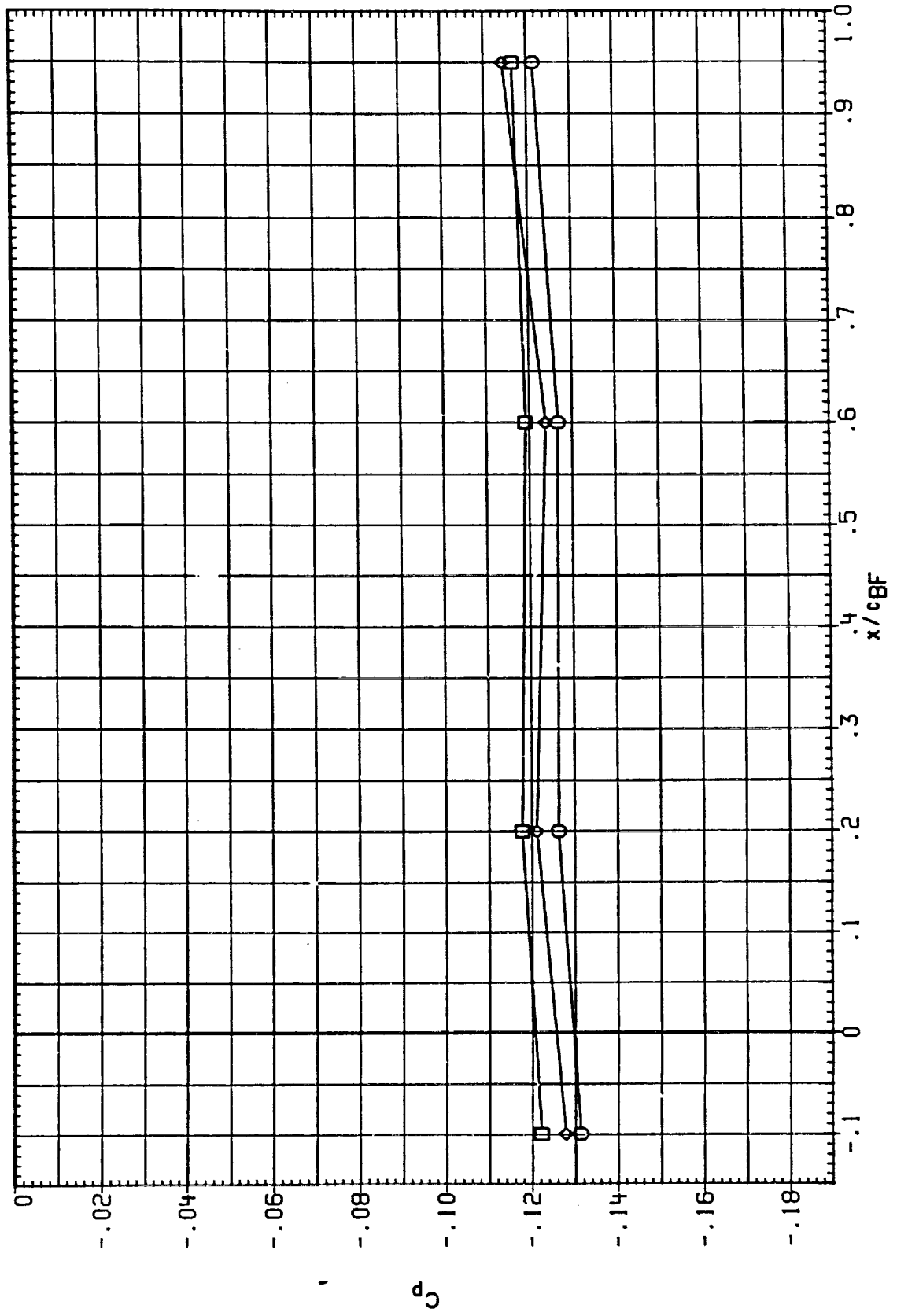


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG191)	○	IA613A,B/L OT+ASRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOG461)	□	IA613A,B/L OT+ASRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOG841)	◇	IA613A,B/L OT+ASRM+PLUMES SI.2	1.050	180.000	10.000	9.000

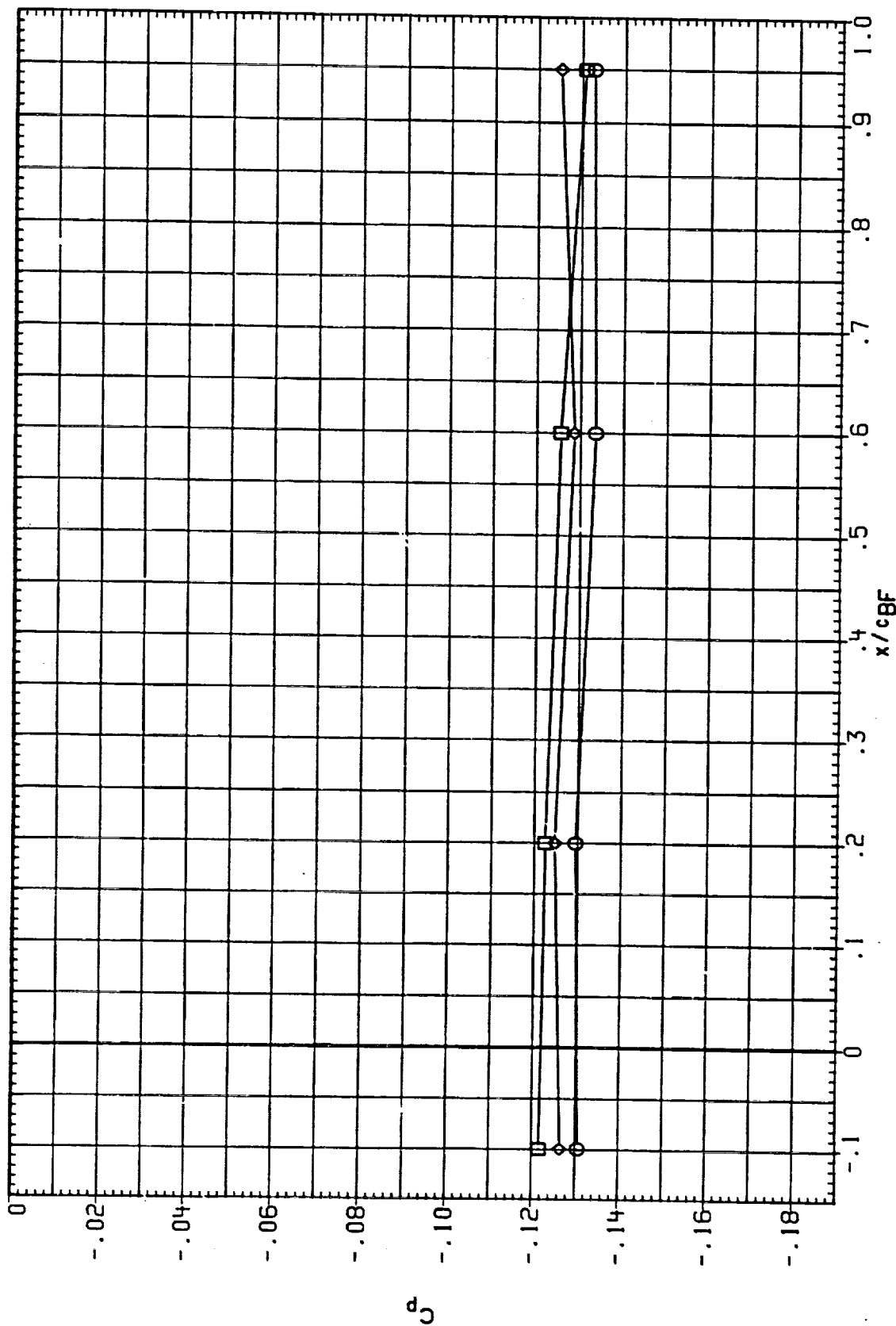


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG20)	○	IA613A, B/L OT+SRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOG47)	□	IA613A, B/L OT+SRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOG85)	◇	IA613A, B/L OT+SRM+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOGC3)	△	IA613A, B/L OT+SRM+PLUMES S1.2	1.100	999.000	10.000	5.000

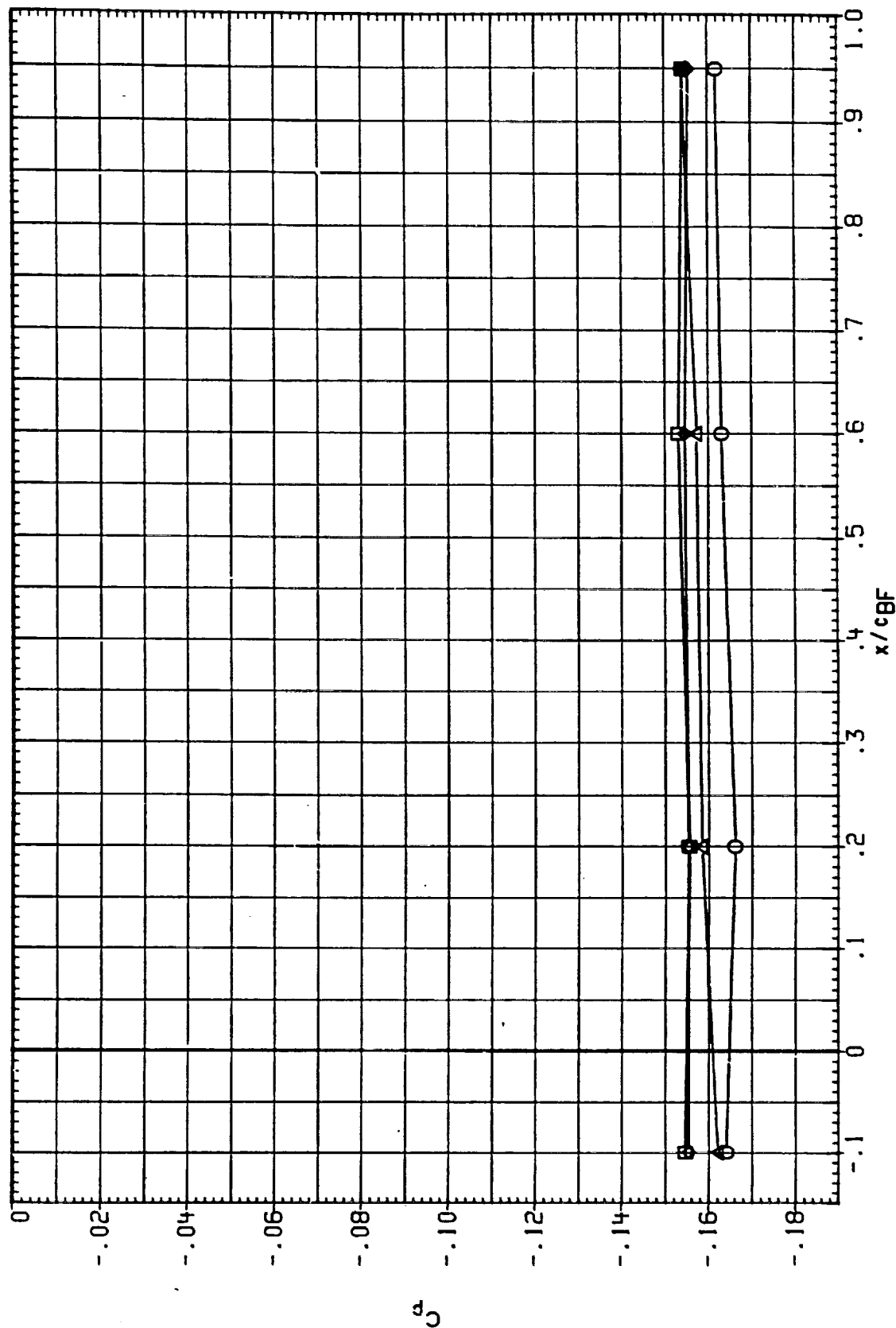


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0620)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0647)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RC0685)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RC06C3)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

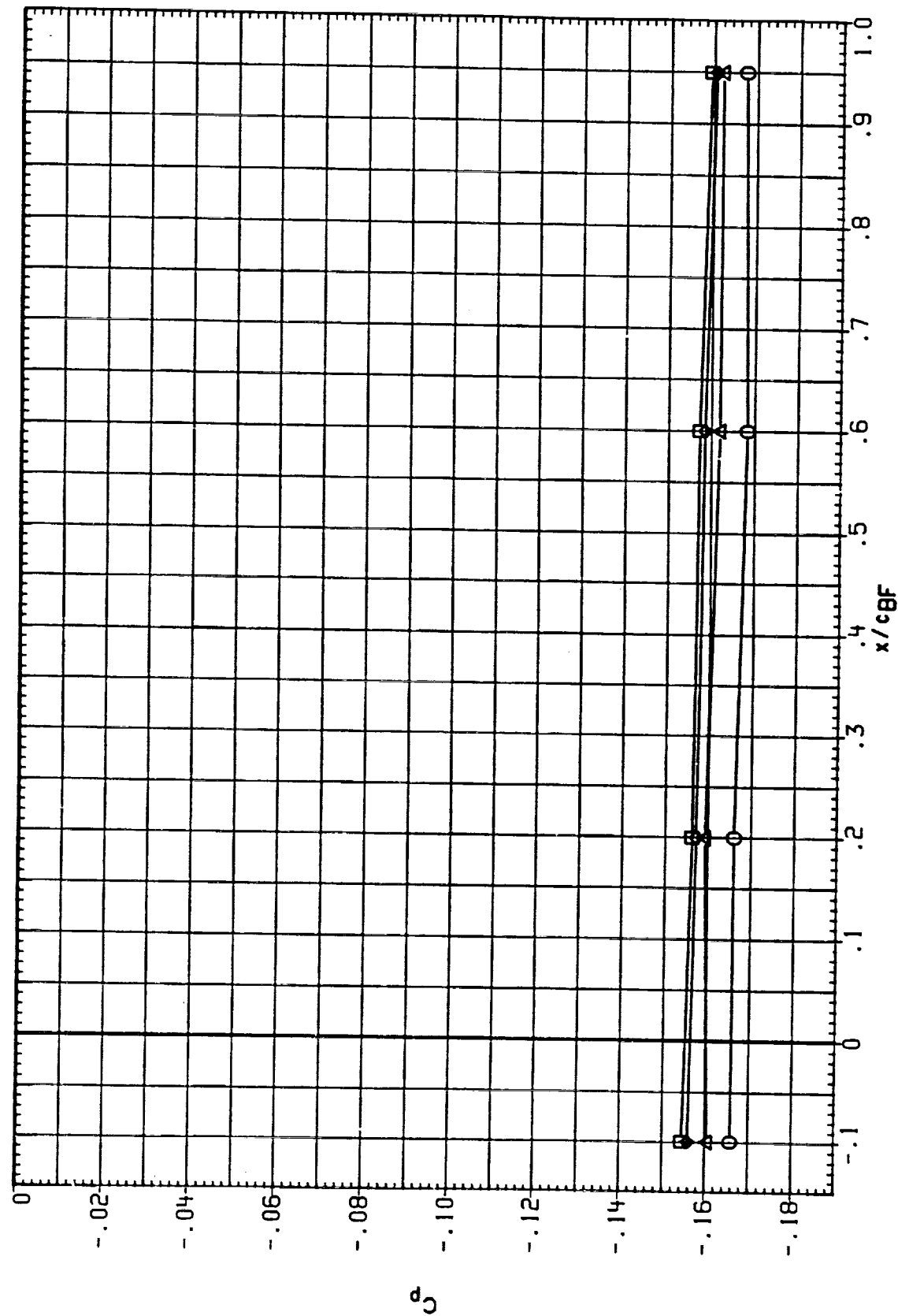


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000    ETA = .500    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG21)	□	IA613A, B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOG48)	◇	IA613A, B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOG86)	△	IA613A, B/L OT+SRM+PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOG49)		IA613A, B/L OT+SRM+PLUMES SI.2	1.150	999.000	10.000	5.000

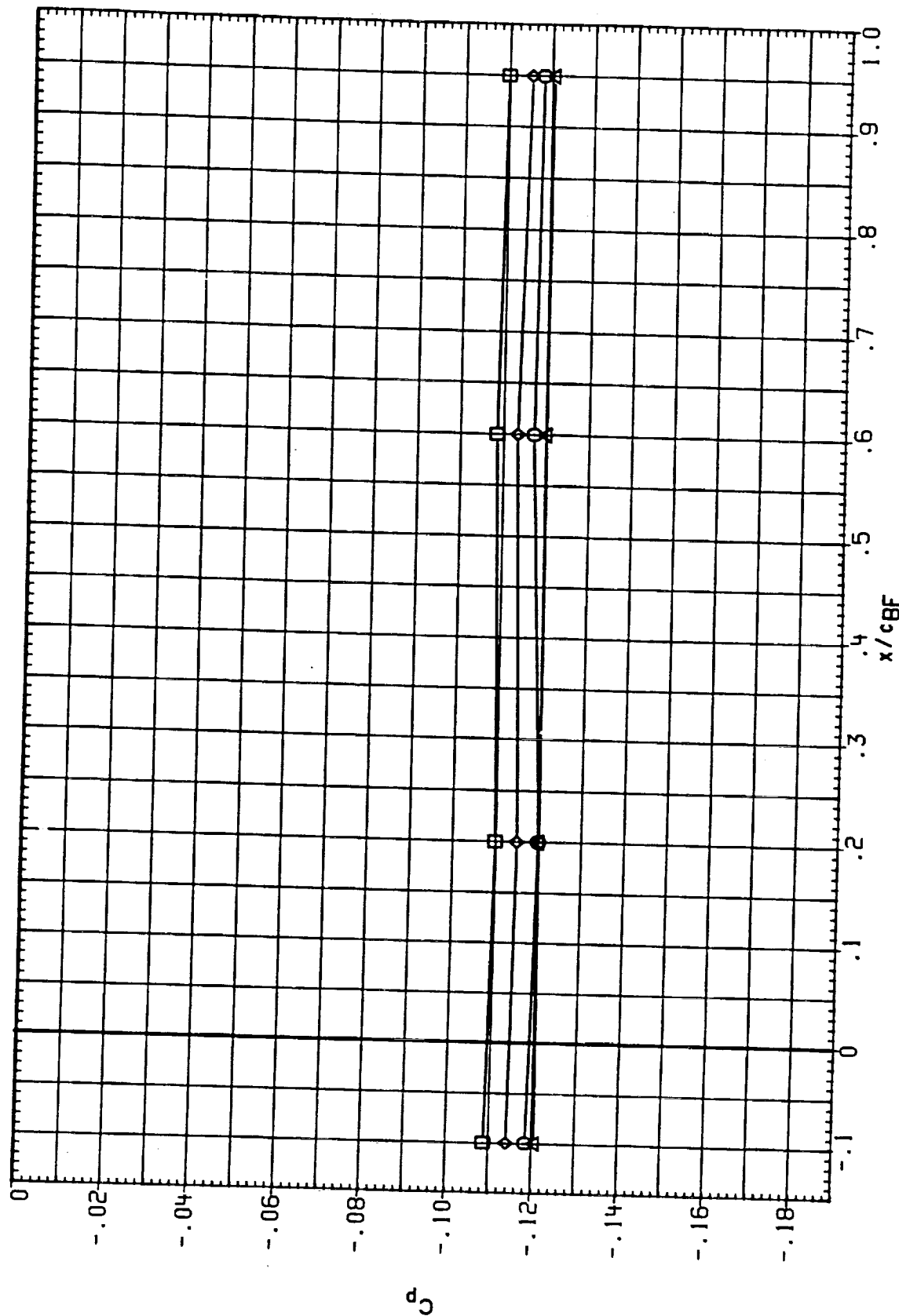


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000    ETA = .100    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0621)	□	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0648)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	.000	10.000	9.000
(RC0686)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	180.300	10.000	9.000
(XC06C4)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP UPPER	1.150	999.000	10.000	5.000

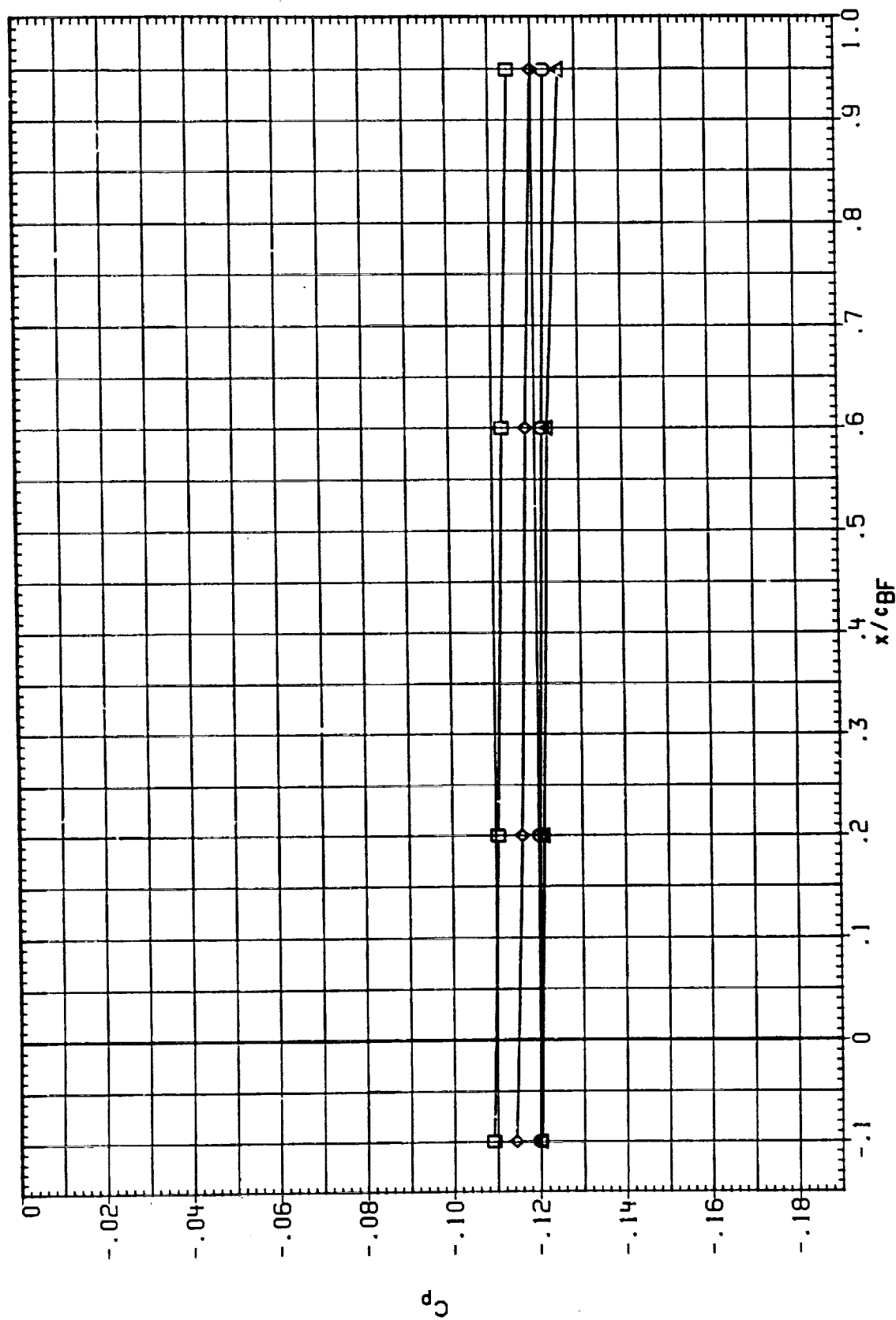


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RC0622)	○	1A613A,B/L OT+RSRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RC0649)	□	1A613A,B/L OT+ASRH+PLUMES S1,2	1.250	.000	10.000	9.000
(RC0687)	◇	1A613A,B/L OT+ASRH+PLUMES S1,2	1.250	180.000	10.000	9.000
(RC06C5)	△	1A613A,B/L OT+ASRH+PLUMES S1,2	1.250	999.000	10.000	5.000

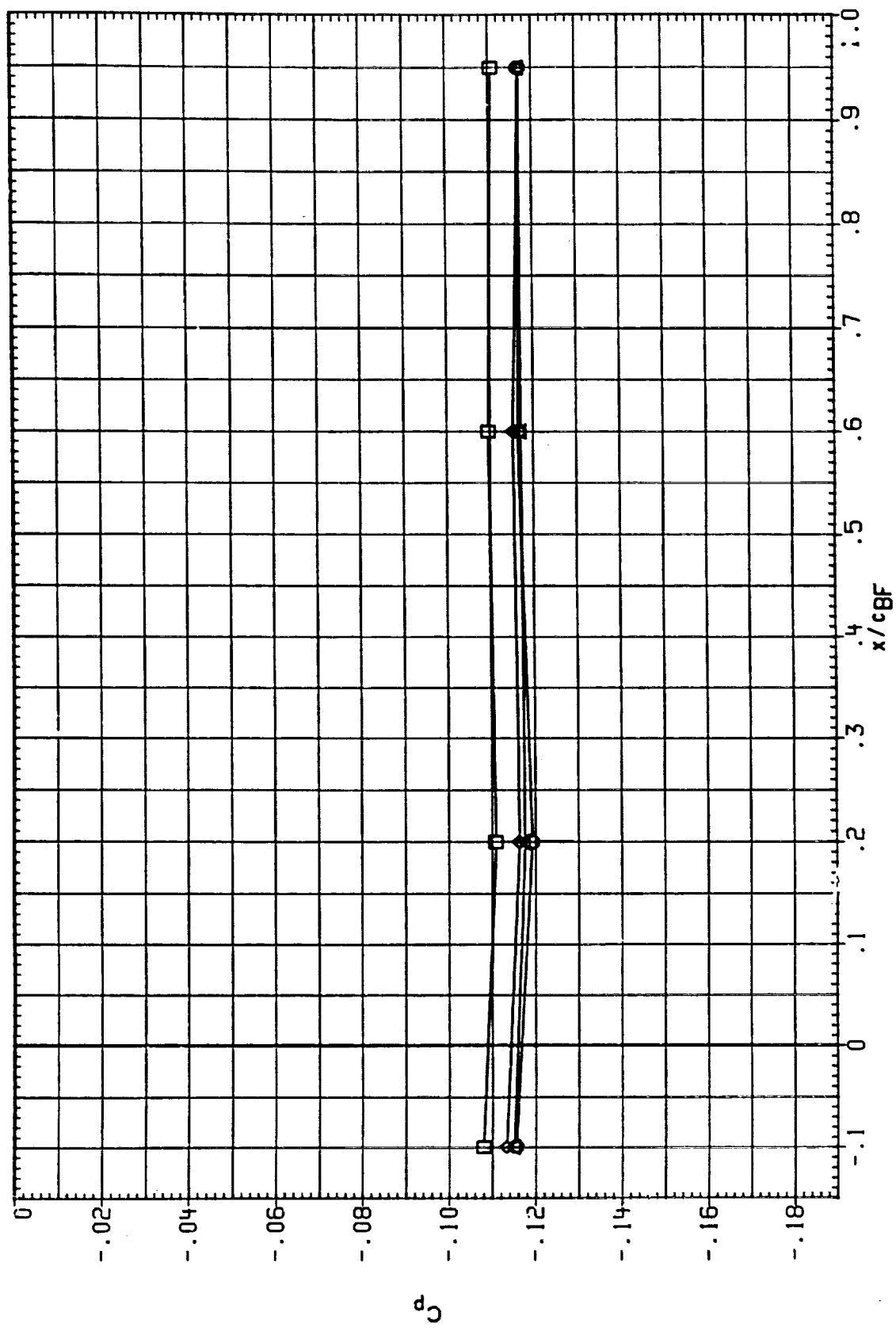


FIGURE 3 1A613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOG22)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOG49)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOG87)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOGC5)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

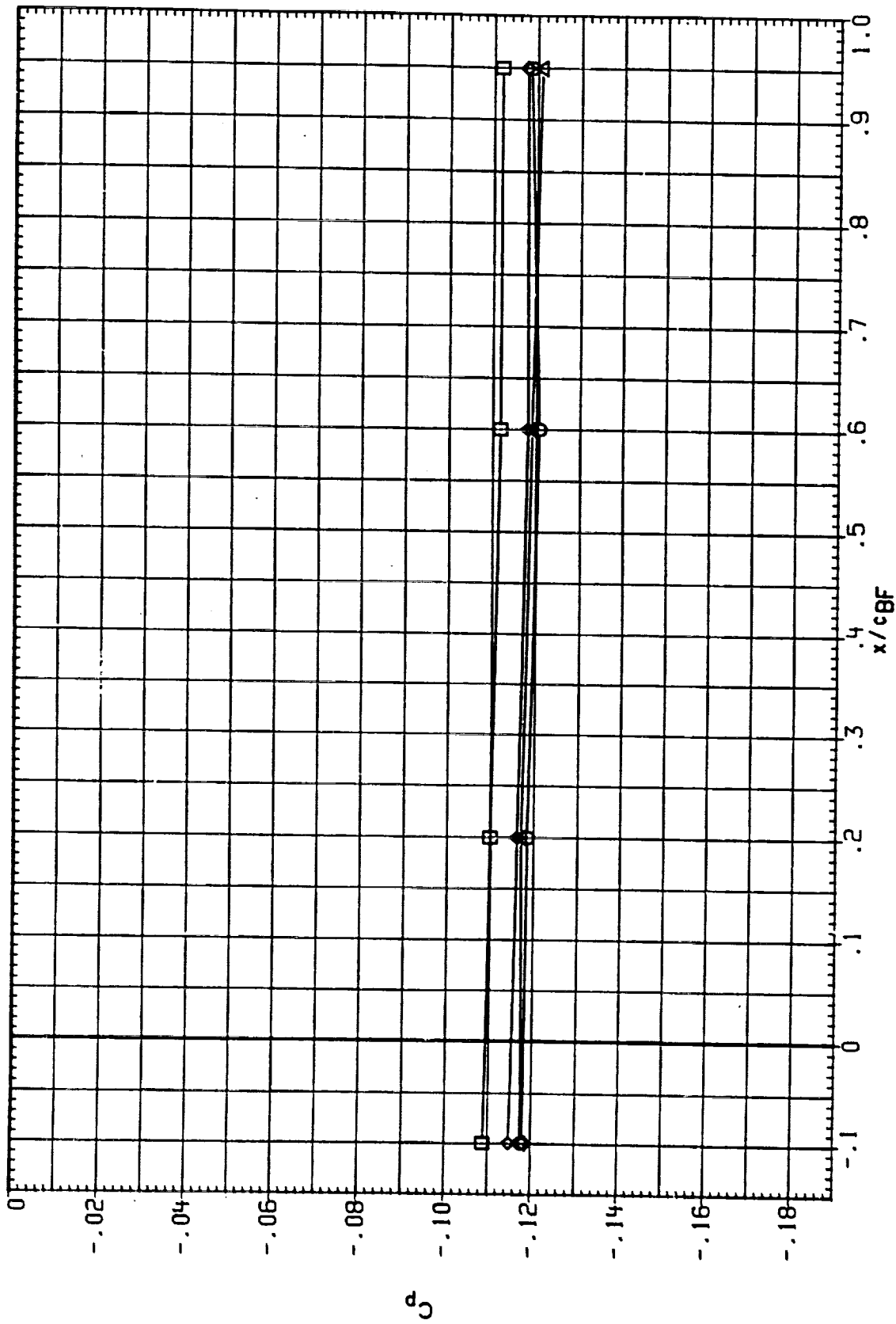


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H6)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	1.300	.000	10.000	9.000
(RC0654)	□	IA613A, B/L OT+ASRH+PLUMES SI.3	1.300	.000	10.000	5.000
(RC0689)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.300	180.000	10.000	5.000
(RC06C7)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.300	999.000	10.000	5.000

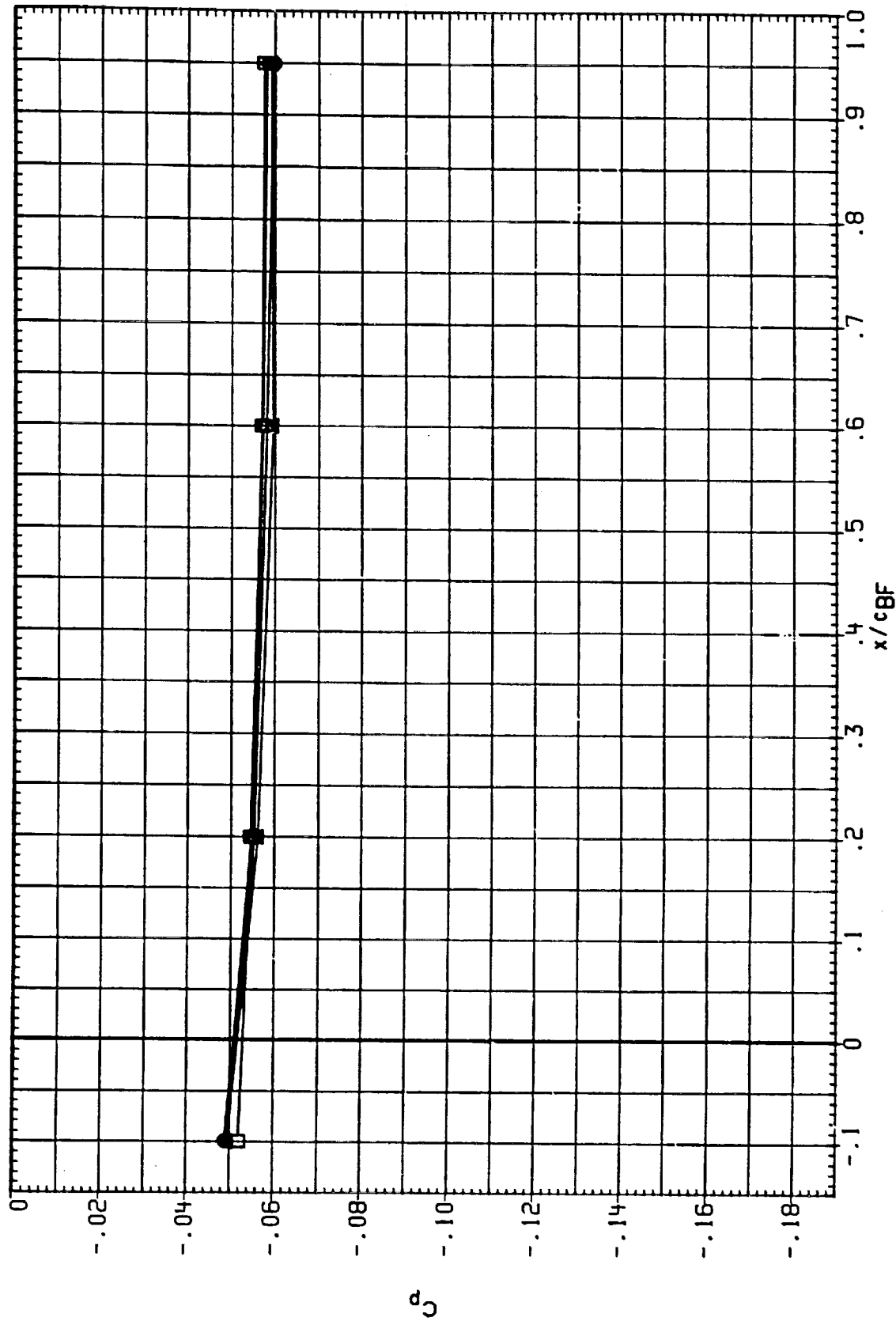


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H6)	□	IA613A.B/L OT*SRM*PLUMES SI.2	1.300	.000	10.000	9.000
(RC0654)	□	IA613A.B/L OT*SRM*PLUMES SI.3	1.300	.000	10.000	5.000
(RC0689)	□	IA613A.B/L OT*SRM*PLUMES SI.3	1.300	180.000	10.000	5.000
(RC06C7)	△	IA613A.B/L OT*SRM*PLUMES SI.3	1.300	999.000	10.000	5.000

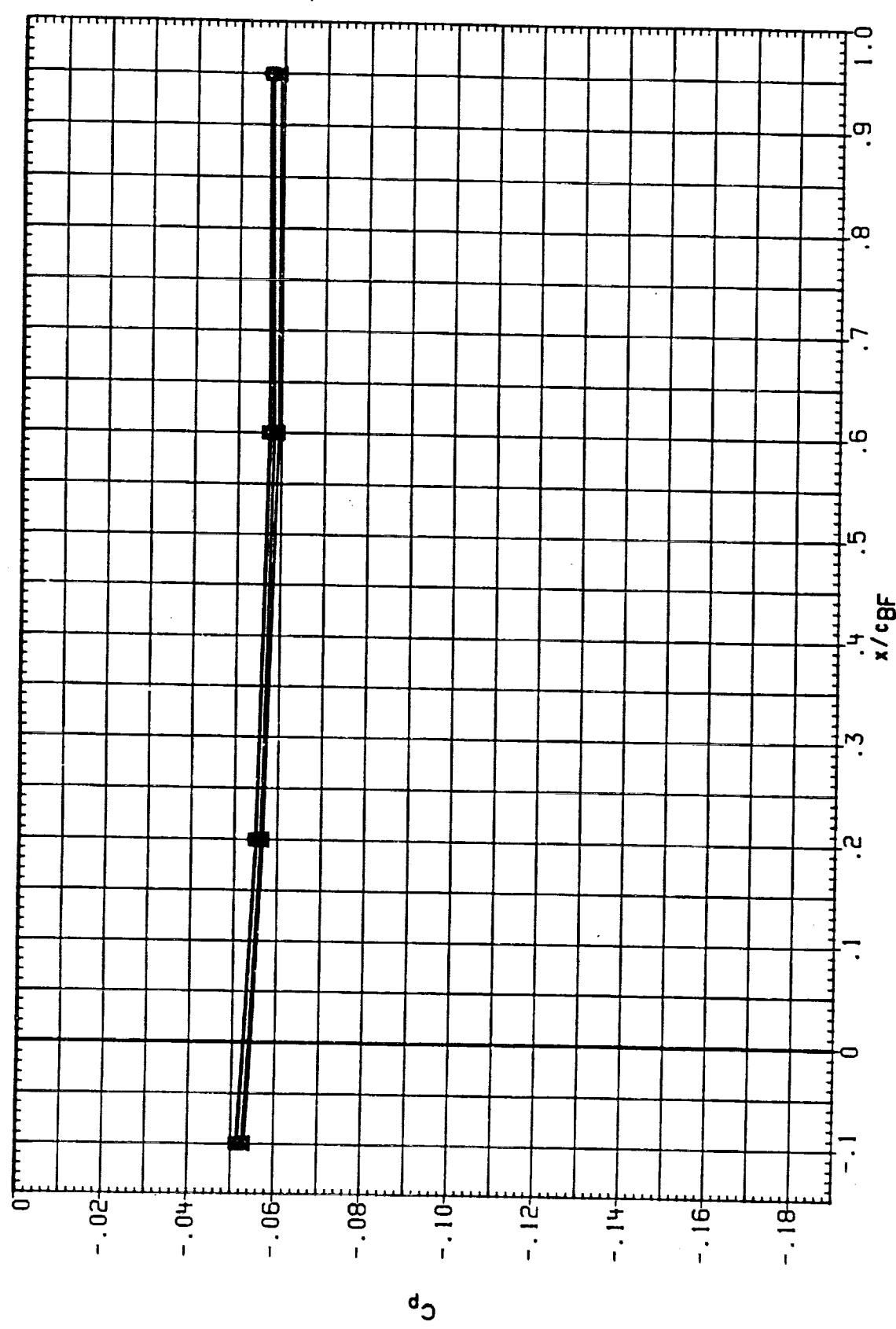


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .0000    ETA = .500    ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H7)	○	IA613A,B/L OT+RGRH+PLUMES SI.2	1.350	.000	10.000	9.000
(RC0655)	□	IA613A,B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RC0690)	◇	IA613A,B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RC06CB)	△	IA613A,B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

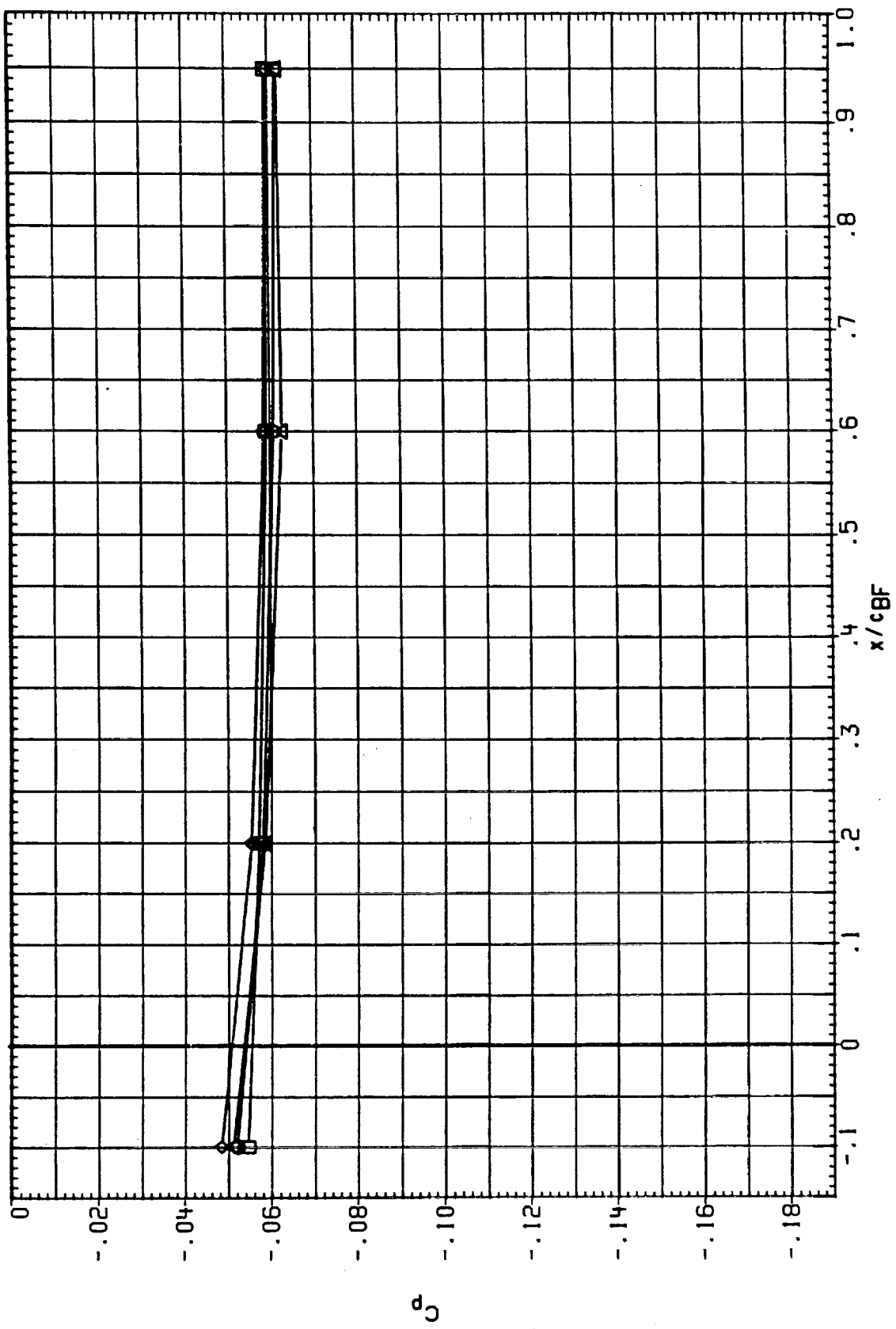


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - UPPER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOGH7)	○	IA613A, B/L OT+RSRH+PLUMES SI, 2	1.350		10.000	9.000
(RCOG55)	□	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.350	.000	10.000	5.000
(RCOG90)	◇	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.350	180.000	10.000	5.000
(RCOGC8)	△	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.350	999.000	10.000	5.000

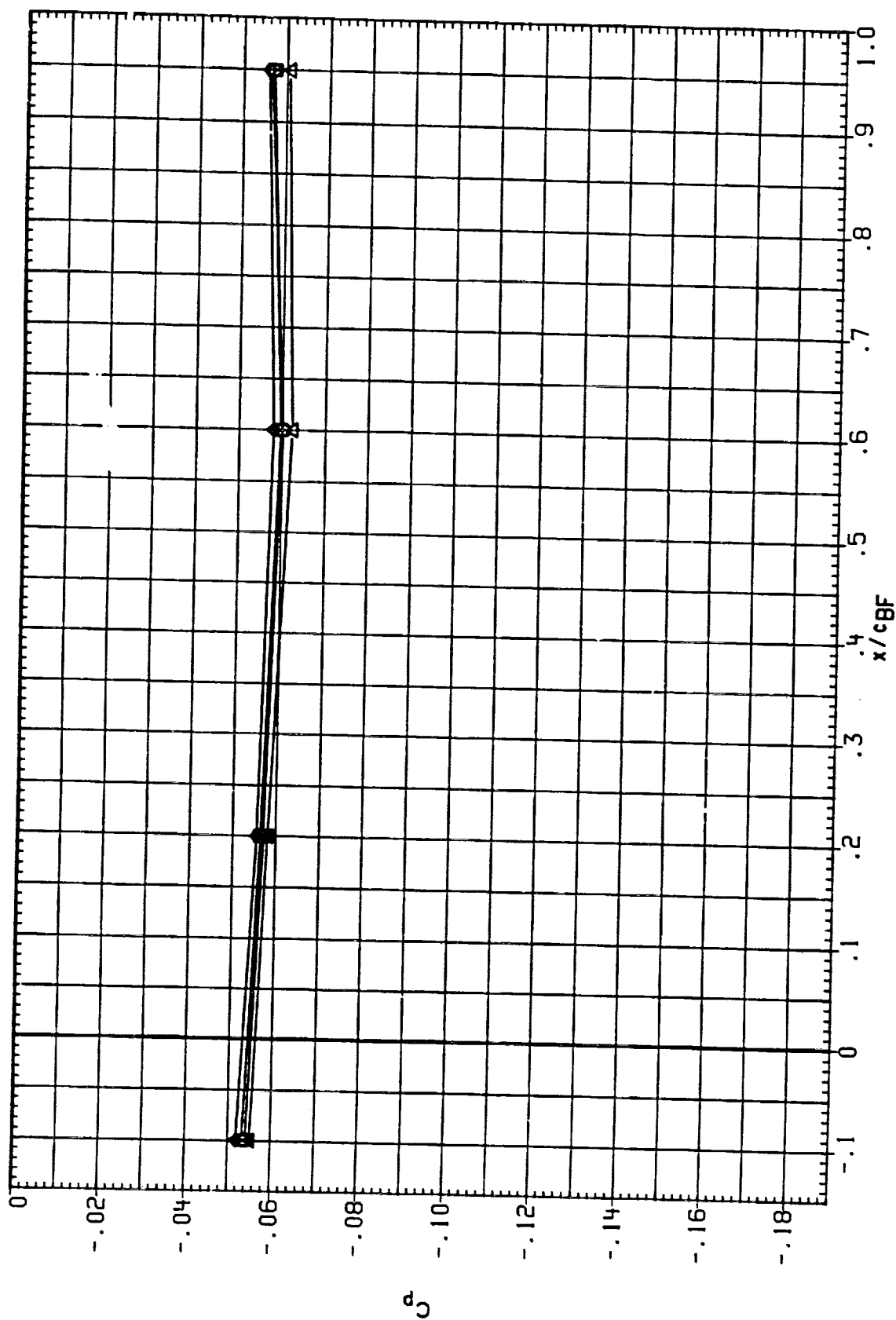


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06P8)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RC06S6)	□	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RC06G1)	◇	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RC06C9)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000

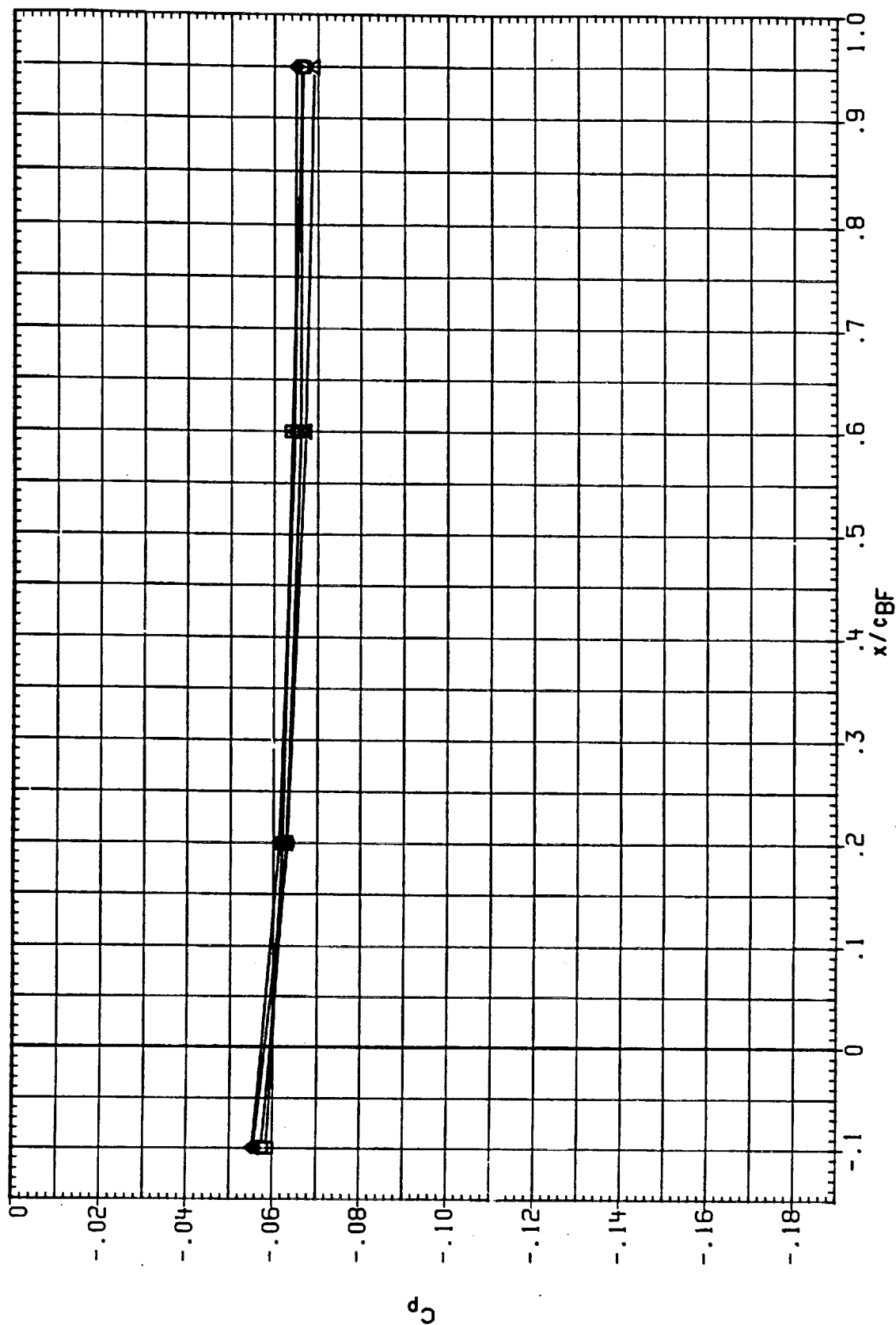


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0GHB)	□	IA613A-B/L OT*ASRM*PLUMES SI.2	1.400	.000	10.000	9.000
(RC0G56)	□	IA613A-B/L OT*ASRM*PLUMES SI.3	1.400	.000	10.000	5.000
(RC0G91)	◇	IA613A-B/L OT*ASRM*PLUMES SI.3	1.400	180.000	10.000	5.000
(RC0G69)	△	IA613A-B/L OT*ASRM*PLUMES SI.3	1.400	999.000	10.000	5.000

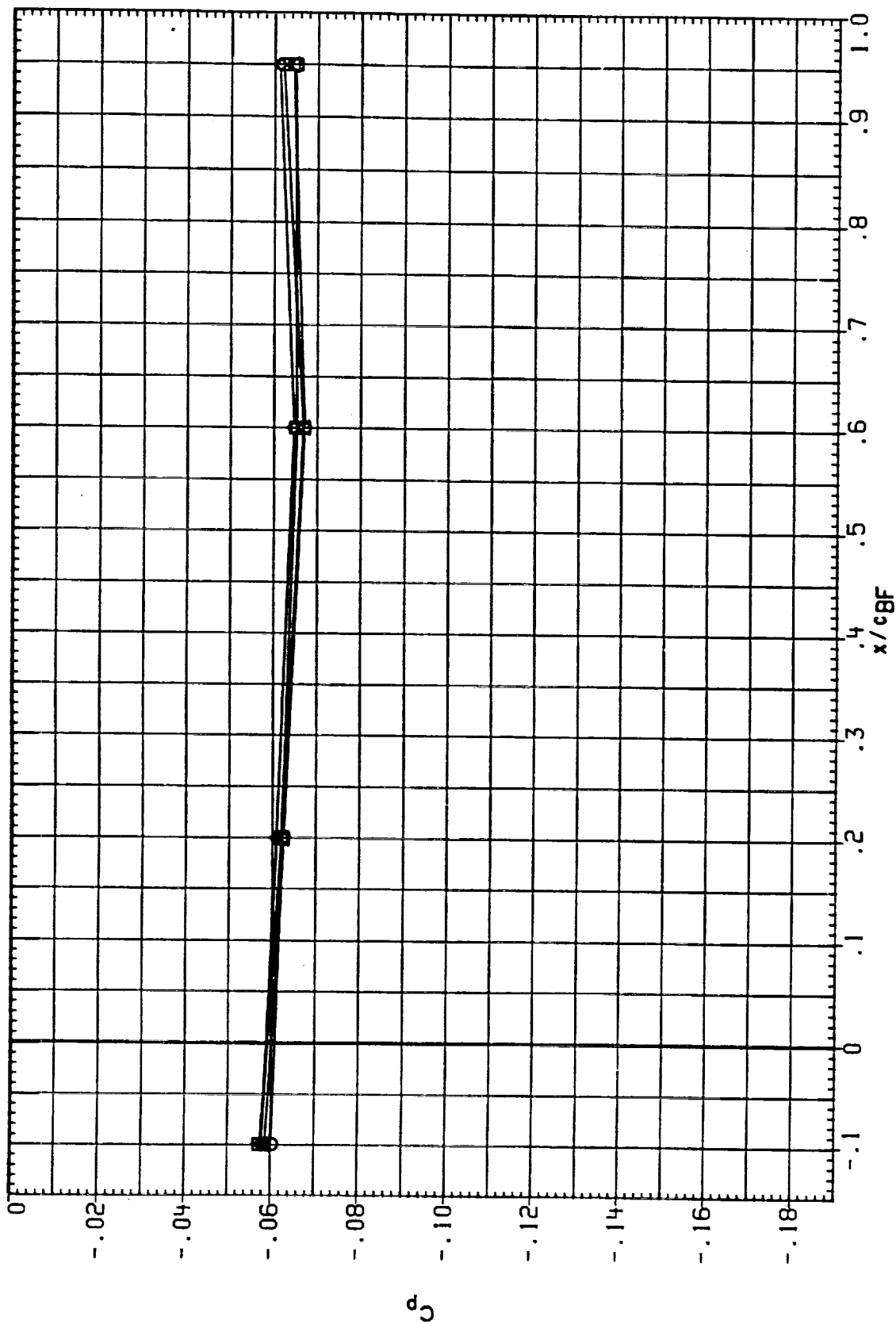


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC06H9)	○	IA613A-B/L OT+RSRM+PLUMES SI.2	1.550	.000	10.000	9.000
(RC0657)	□	IA613A-B/L OT+ASRM+PLUMES SI.3	1.550	.000	10.000	5.000
(RC0692)	△	IA613A-B/L OT+ASRM+PLUMES SI.3	1.550	180.000	10.000	5.000
(RC0600)	◇	IA613A-B/L OT+ASRM+PLUMES SI.3	1.550	999.000	10.000	5.000

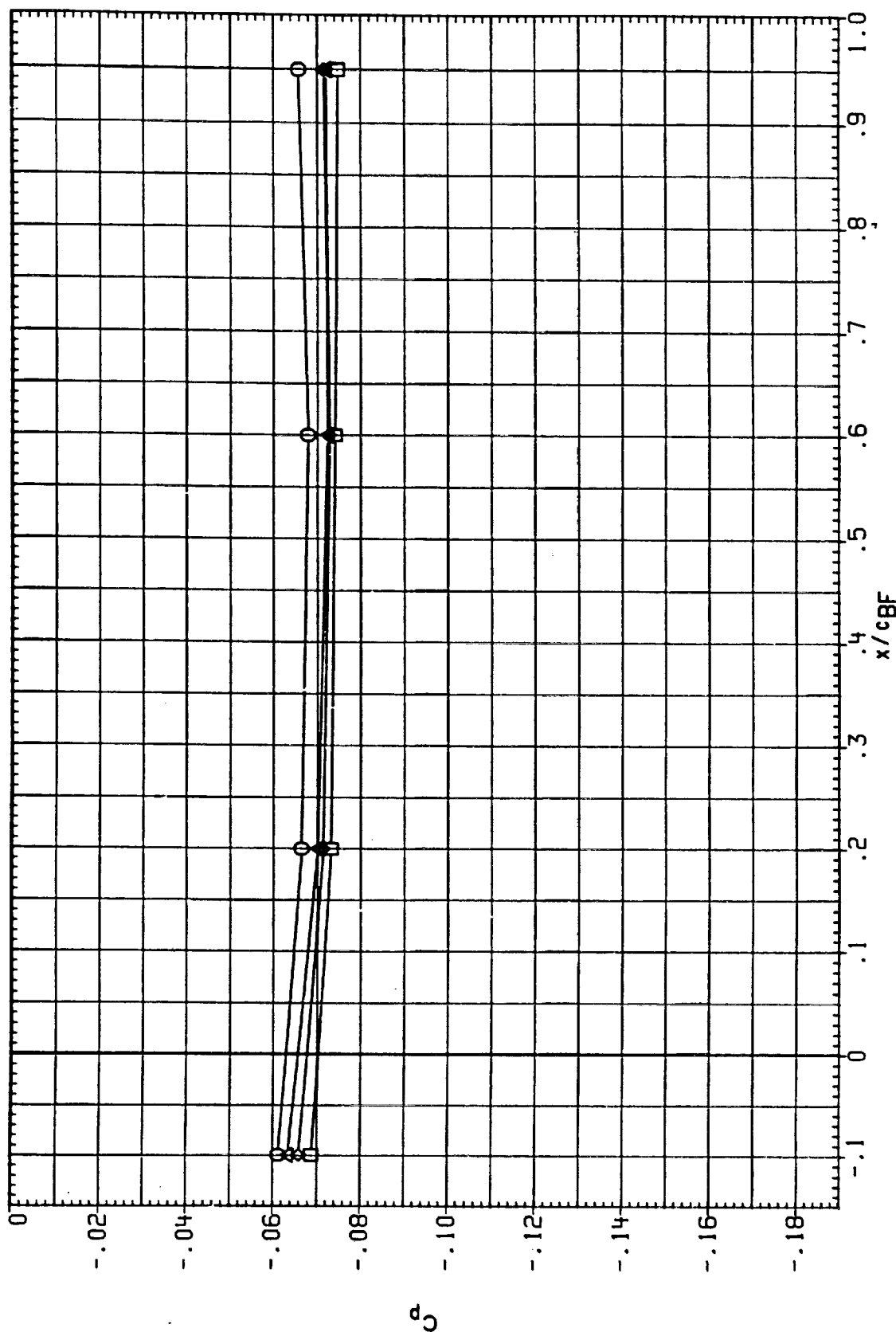


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOGH9)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RCOG57)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RCOG92)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOG00)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

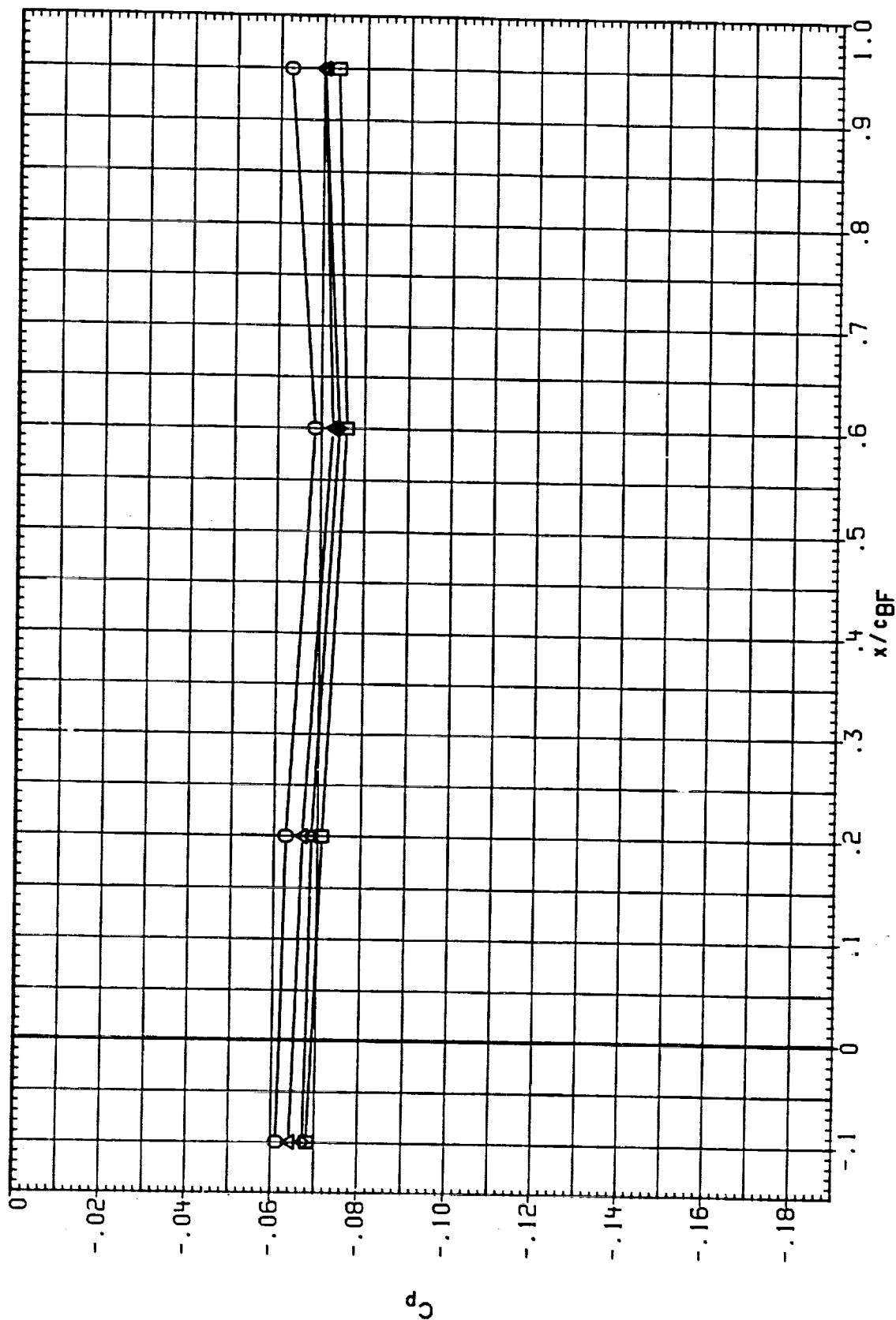


FIGURE 3 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - UPPER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF15)	□	IA613A.B/L OT+RSRH+PLUMES SI.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF42)	◇	IA613A.B/L OT+ASRH+PLUMES SI.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF80)	◇	IA613A.B/L OT+ASRH+PLUMES SI.2 -BODY FLAP LOWER	.600	180.000	10.000	9.000
(RCOF C1)	△	IA613A.B/L OT+ASRH+PLUMES SI.2 -800. FLAP LOWER	.600	999.000	10.000	5.000

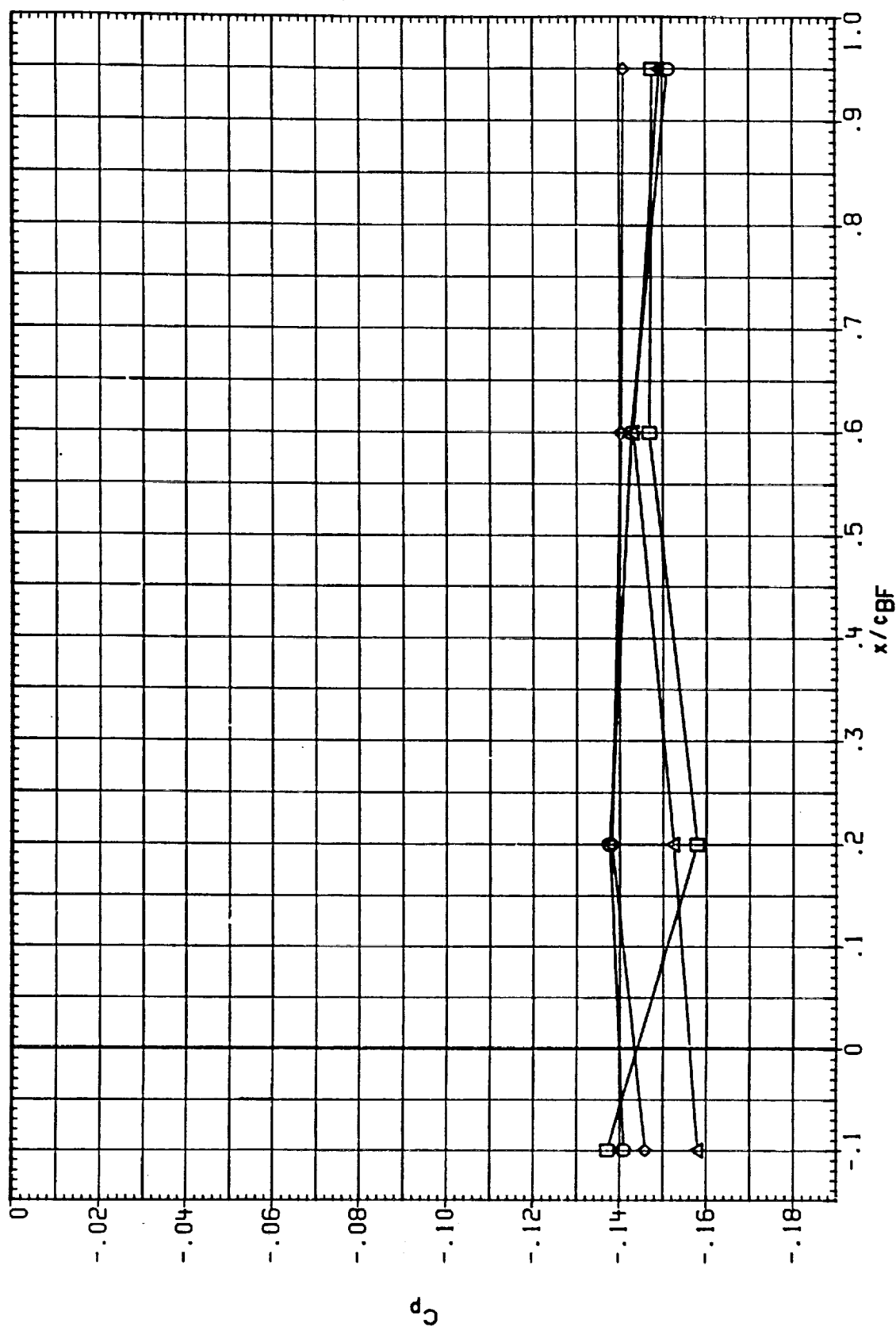


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF15)	○	IA613A,B/L OT+SRM+PLUMES S1.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF12)	□	IA613A,B/L OT+SRM+PLUMES S1.2 -BODY FLAP LOWER	.600	.000	10.000	9.000
(RCOF80)	◇	IA613A,B/L OT+SRM+PLUMES S1.2 -BODY FLAP LOWER	.600	180.000	10.000	9.000
(RCOF11)	△	IA613A,B/L OT+SRM+PLUMES S1.2 -BODY FLAP LOWER	.600	999.000	10.000	5.000

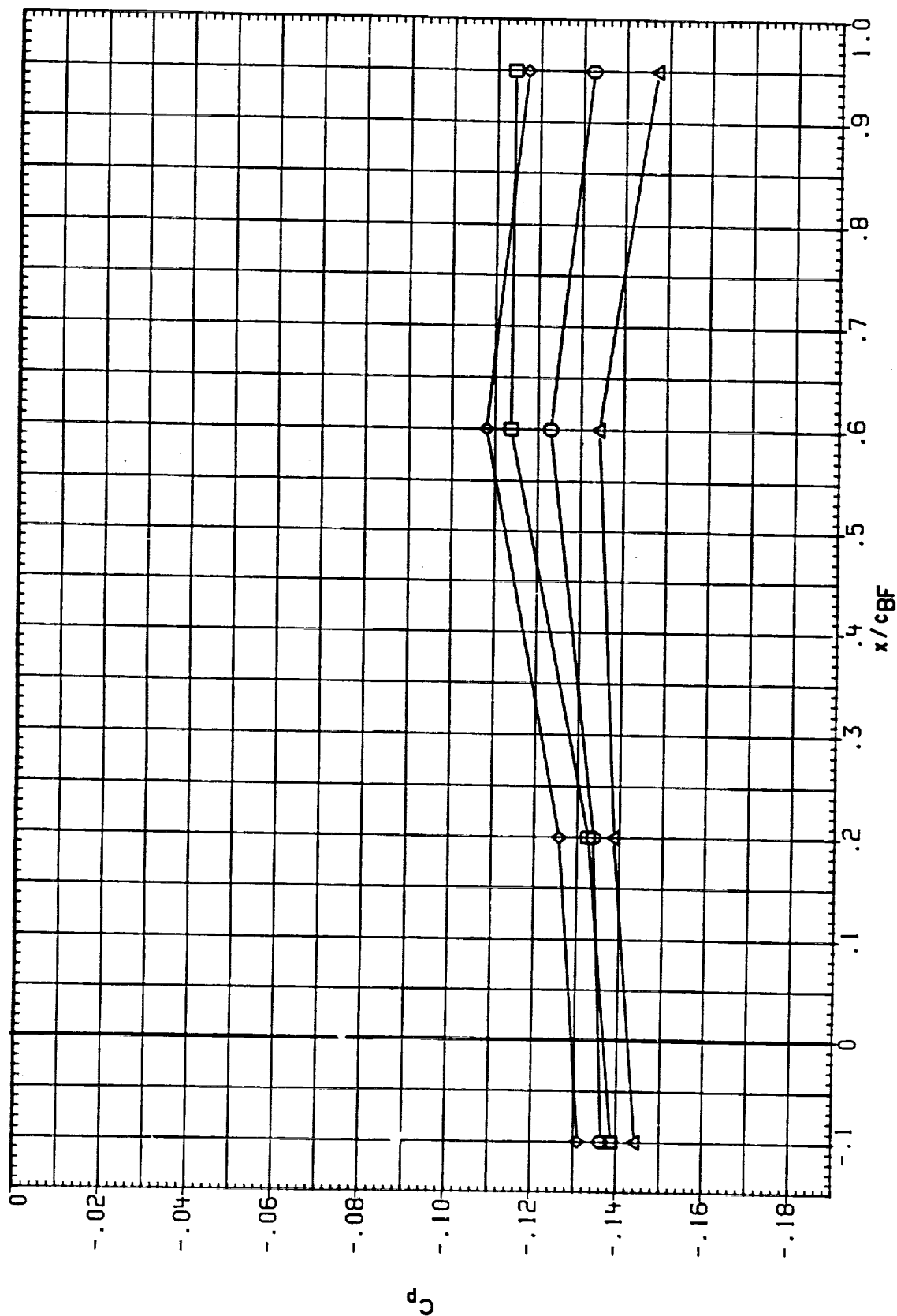


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF16)	□	IA613A, B/L OT+RSRH+PLUMES S1.2 -BODY FLAP LOWER	.800	.000	10.000	9.000
(RCOF43)	○	IA613A, B/L OT+ASRH+PLUMES S1.2 -BODY FLAP LOWER	.800	.000	10.000	9.000
(RCOF81)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2 -BODY FLAP LOWER	.800	180.000	10.000	9.000

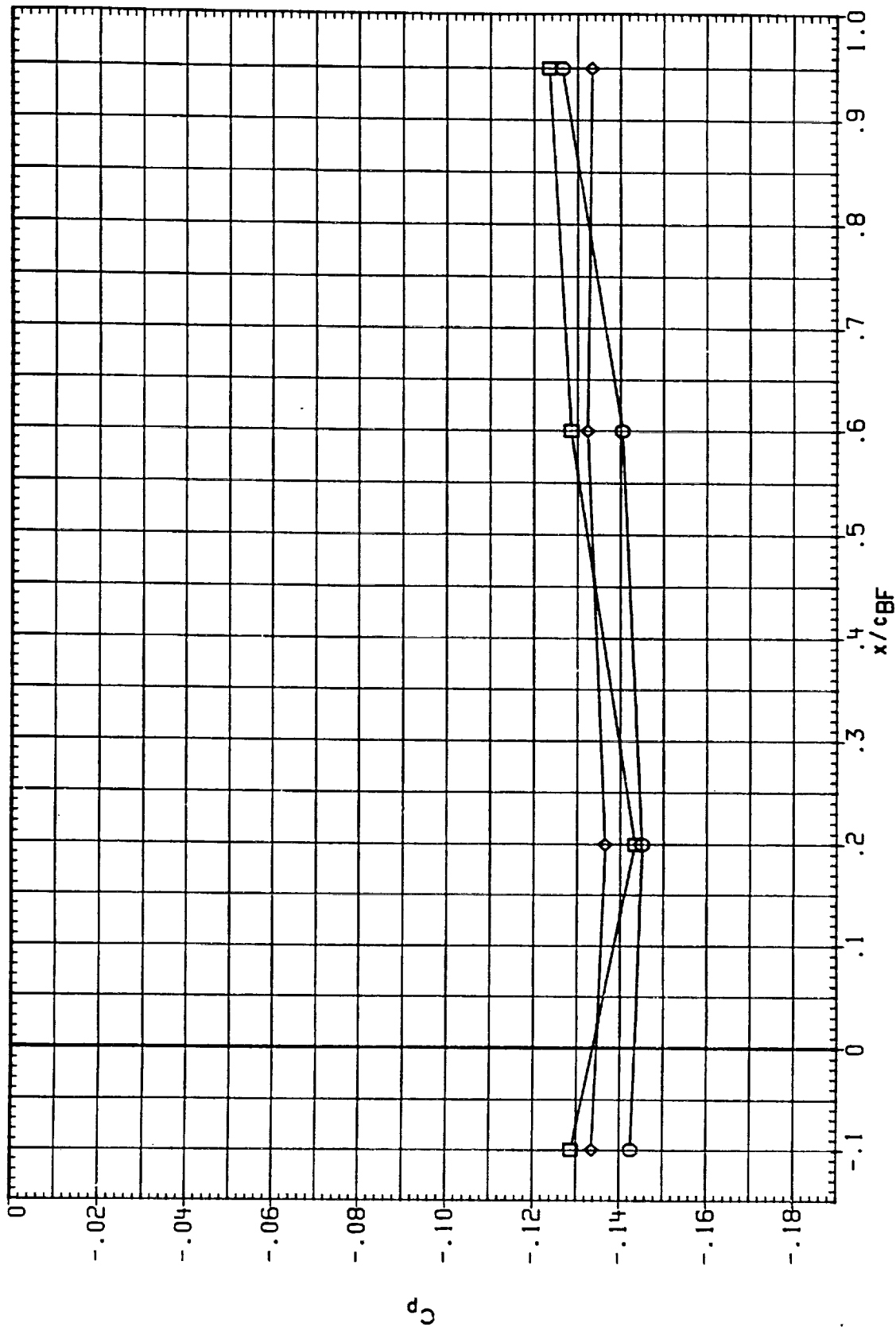


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RCOF 16)	○	1A613A, B/L OT+RSRH+PLUMES S1.2	.800	.000	10.000	9.000
(RCOF 43)	□	1A613A, B/L OT+ASRH+PLUMES S1.2	.800	.000	10.000	9.000
(RCOF 81)	◇	1A613A, B/L OT+ASRH+PLUMES S1.2	.800	180.000	10.000	9.000

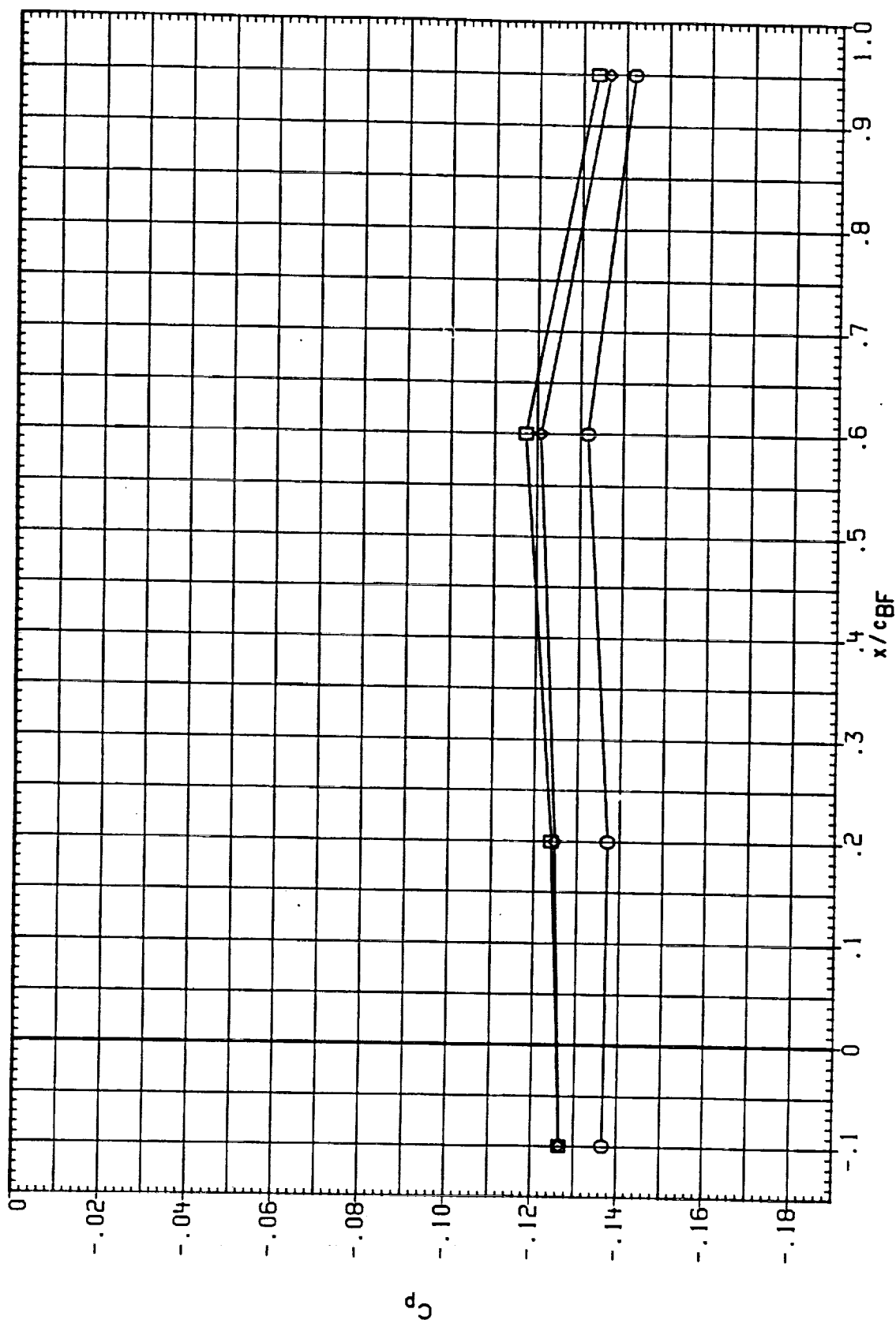


FIGURE 4 1A613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOF 17)	□	IA613A, B/L OT+RSRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOF 44)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOF 82)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOF C2)		IA613A, B/L OT+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

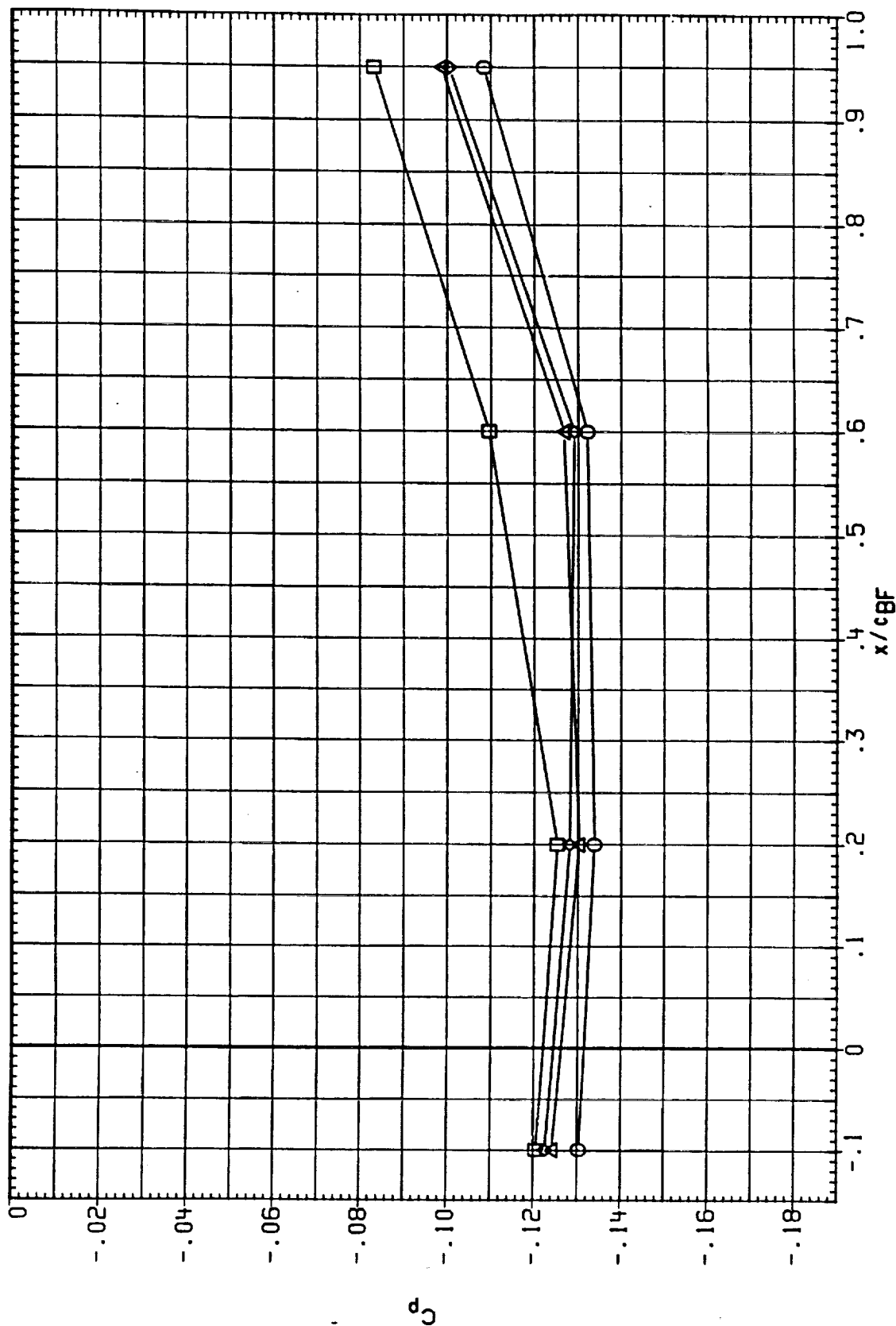


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IFABOX	IB-ELV	OB-ELV
(RCOF 17)	□	IA613A-B/L OT+RSRH+PLUHS S1.2	.900	.000	10.000	9.000
(RCOF 4)	◇	IA613A-B/L OT+ASRH+PLUHS S1.2	.900	.000	10.000	9.000
(RCOF 82)	◇	IA613A-B/L OT+ASRH+PLUHS S1.2	.900	180.000	10.000	9.000
(RCOF 62)	△	IA613A-B/L OT+ASRH+PLUHS S1.2	.900	999.000	10.000	5.000

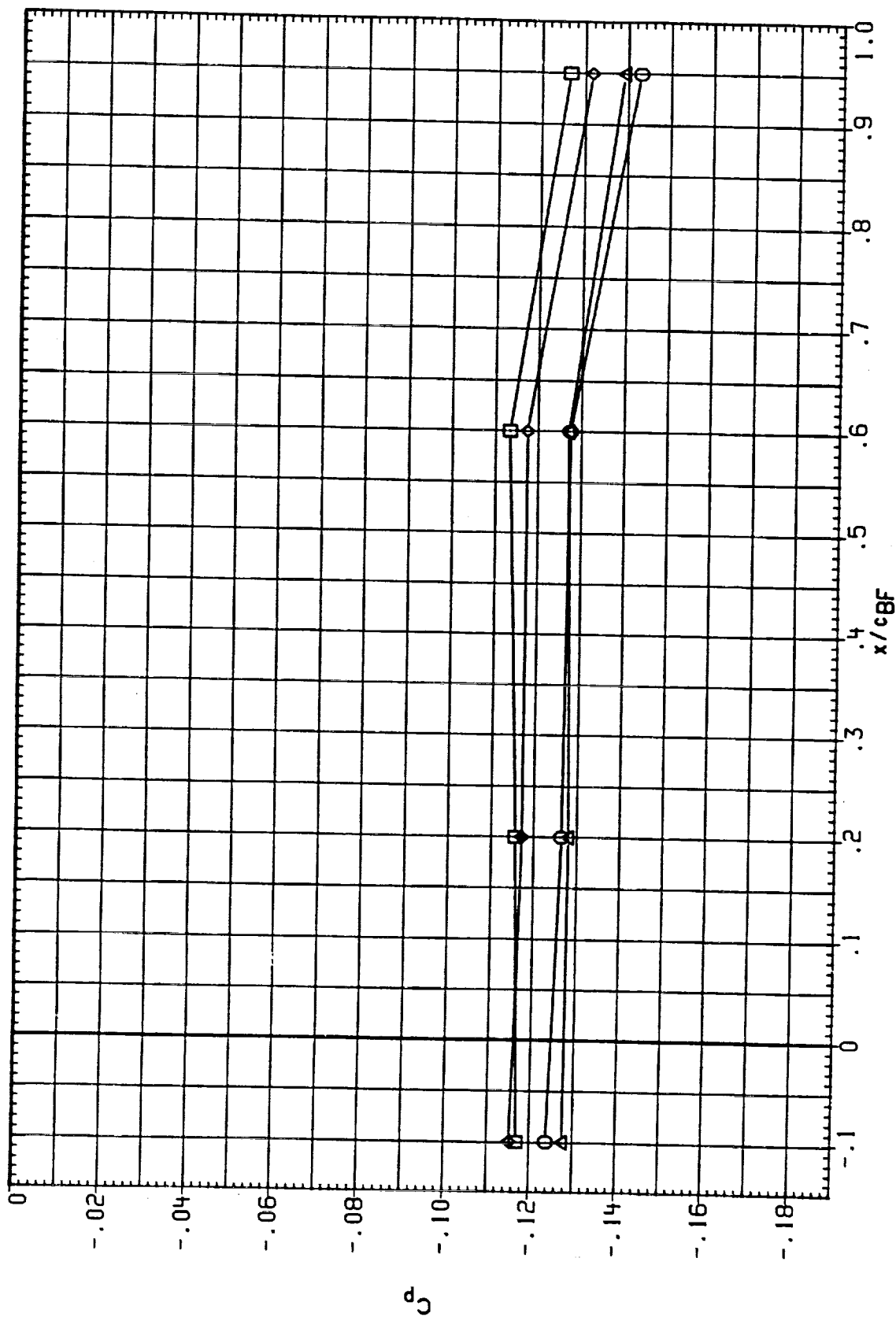


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF 18)	○	IA613A, B/L 01+RSRH+PLUMES SI.2 -BODY FLAP LOWER	.950	.000	10.000	9.000
(RCOF 45)	□	IA613A, B/L 01+ASRH+PLUMES SI.2 -BODY FLAP LOWER	.950	.000	10.000	9.000
(RCOF 83)	◇	IA613A, B/L 01+ASRH+PLUMES SI.2 -BODY FLAP LOWER	.950	180.000	10.000	9.000

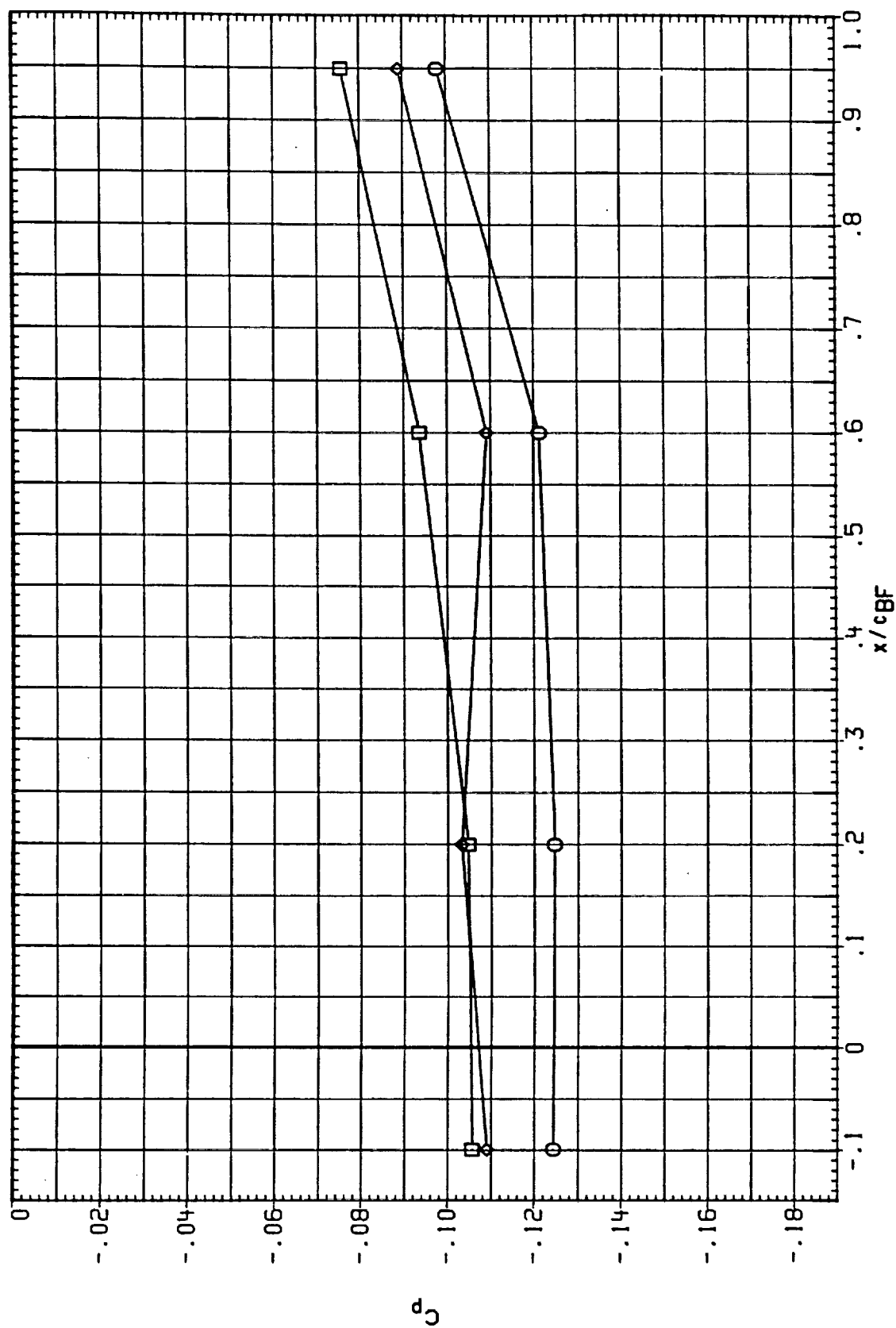


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET: SYMBOL  
(RCOF 18)  
(RCOF 45)  
(RCOF 83)

CONFIGURATION DESCRIPTION  
IA613A.B/L OT\*RSRM\*PLUMES S1.2  
IA613A.B/L OT\*ASRM\*PLUMES S1.2  
IA613A.B/L OT\*ASRM\*PLUMES S1.2

-BODY FLAP LOWER  
-BODY FLAP LOWER  
-BODY FLAP LOWER

MACH .950  
.950  
.950  
IEABOX .000  
180.000  
IB-ELV 10.000  
10.000  
10.000  
OB-ELV 9.000  
9.000  
9.000

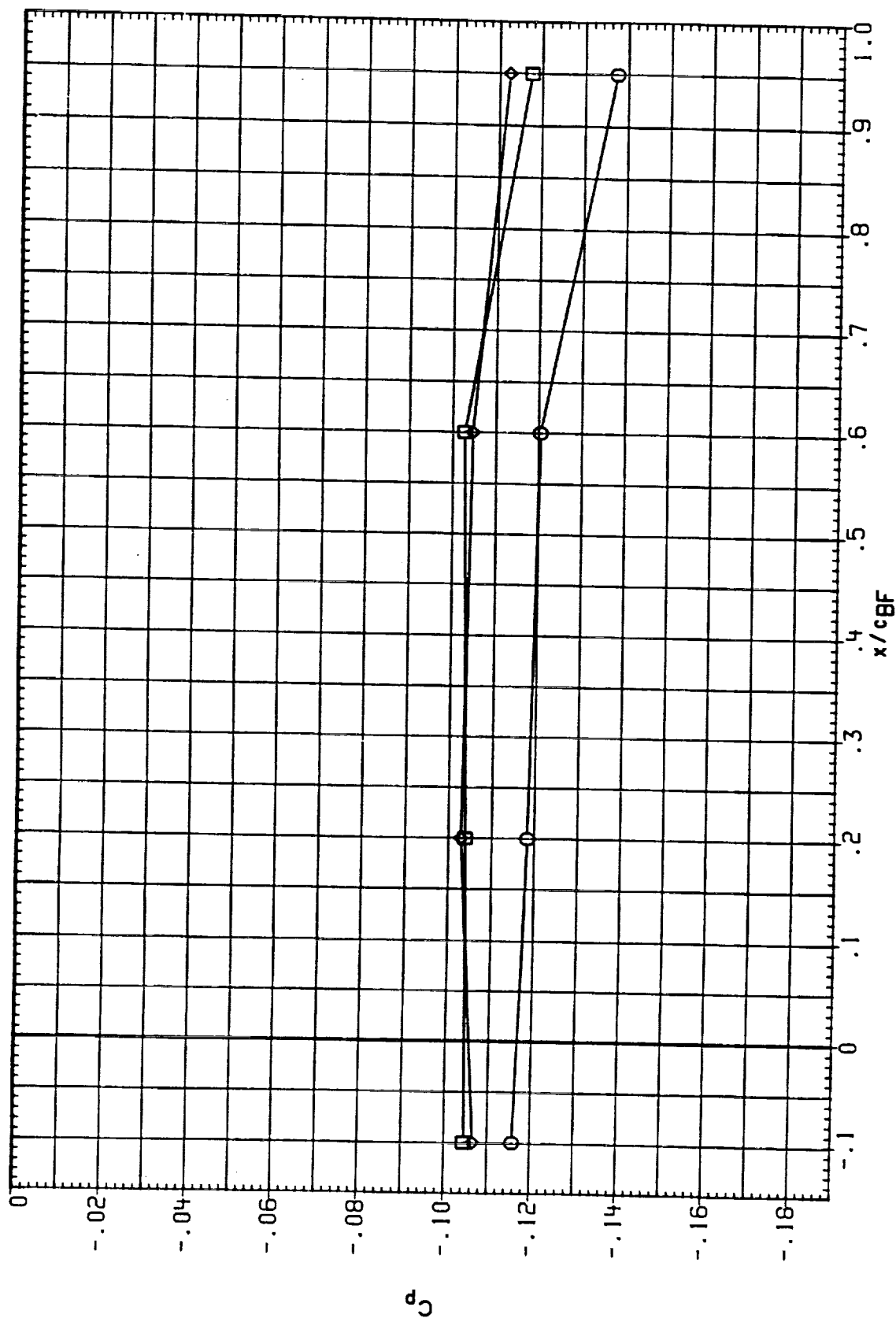


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	18-ELV	08-ELV
(RCOF19)	□	IA613A.B/L OT+RSRM+PLUMES SI.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF45)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF84)	○	IA613A.B/L OT+ASRM+PLUMES SI.2 -BODY FLAP LOWER	1.050	180.000	10.000	9.000

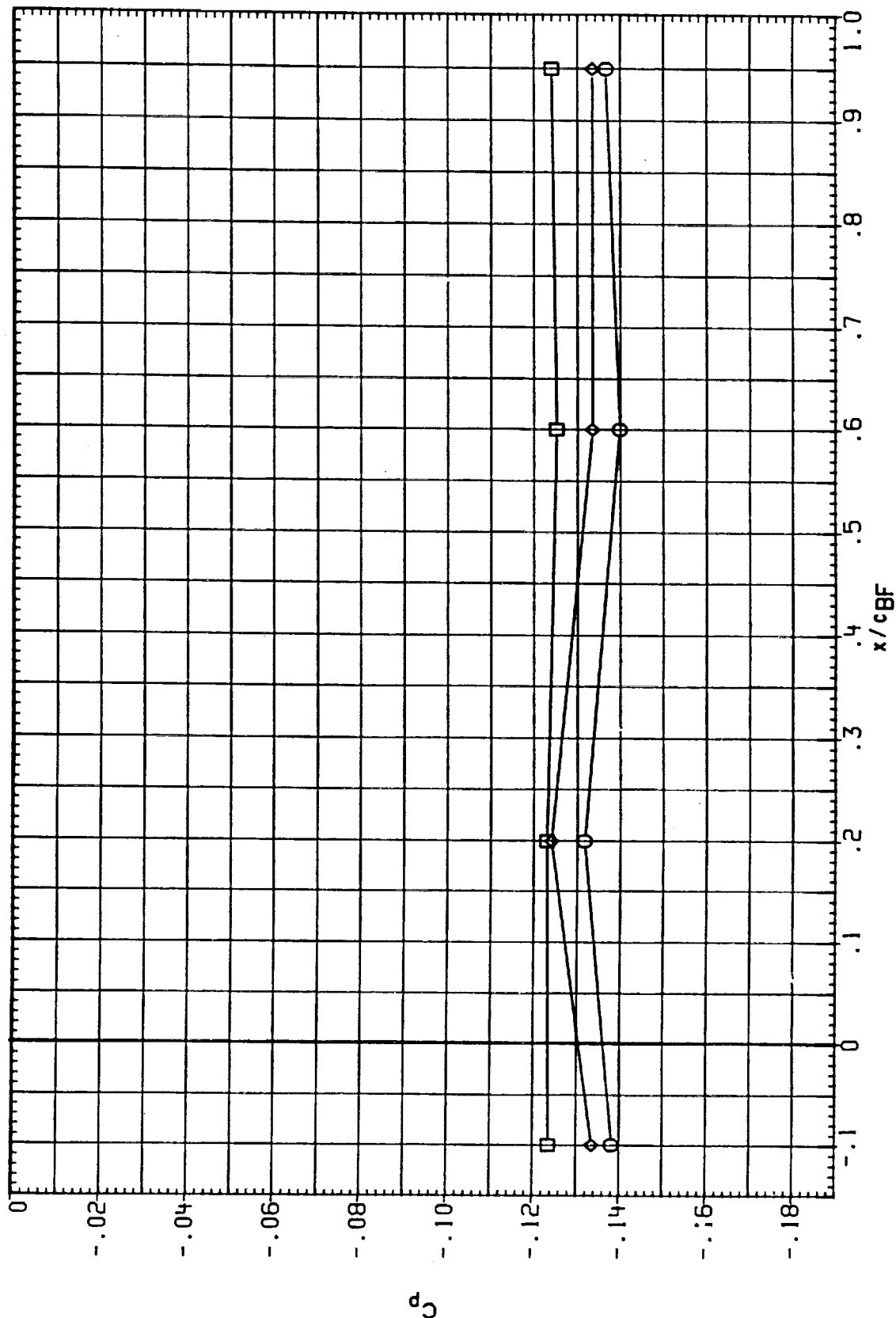


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	EA BOX	IB-ELV	OB-ELV
(RCOF 191)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF 461)	□	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	.000	10.000	9.000
(RCOF 841)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.050	180.000	10.000	9.000

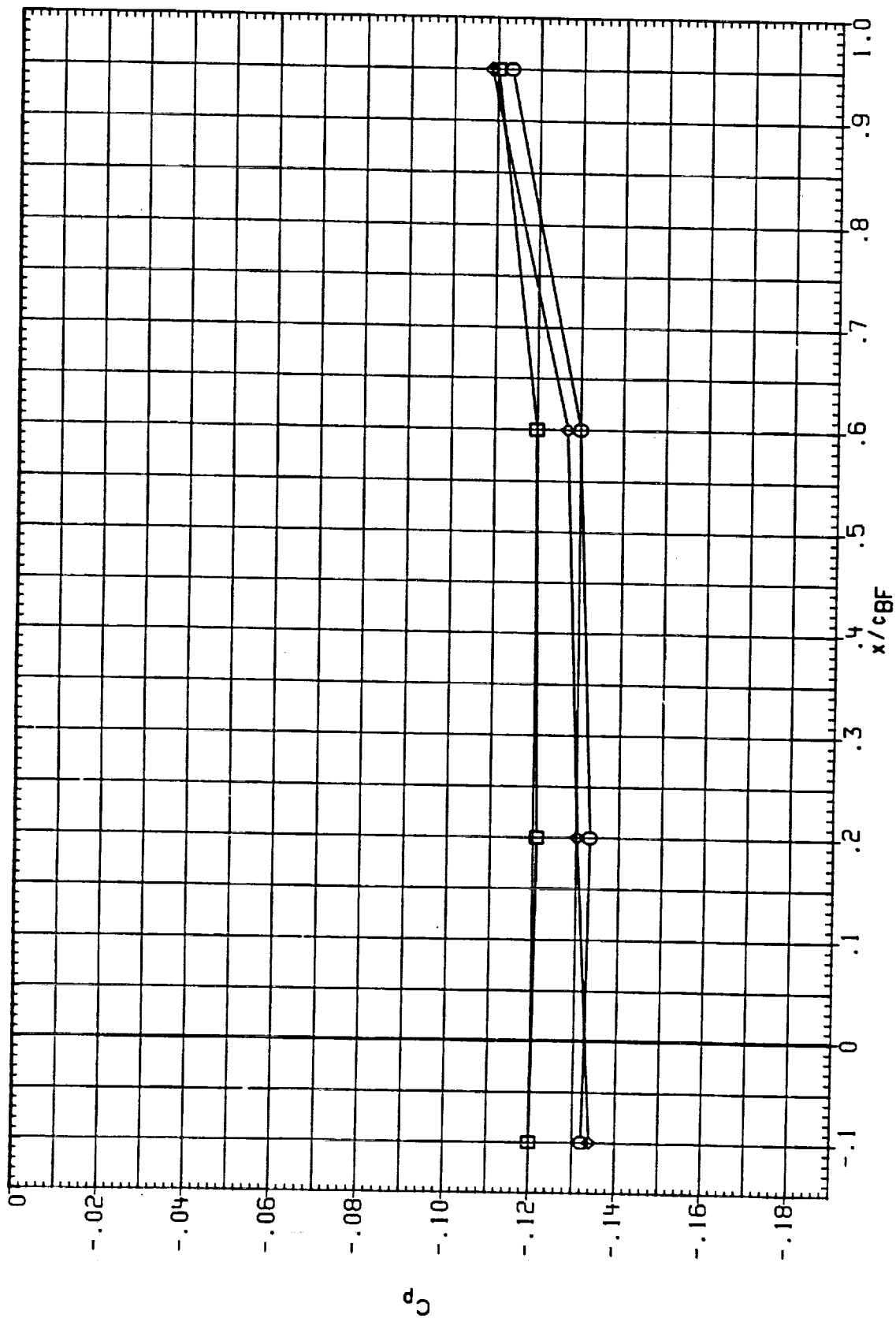


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF20)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOF47)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOF85)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOF63)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

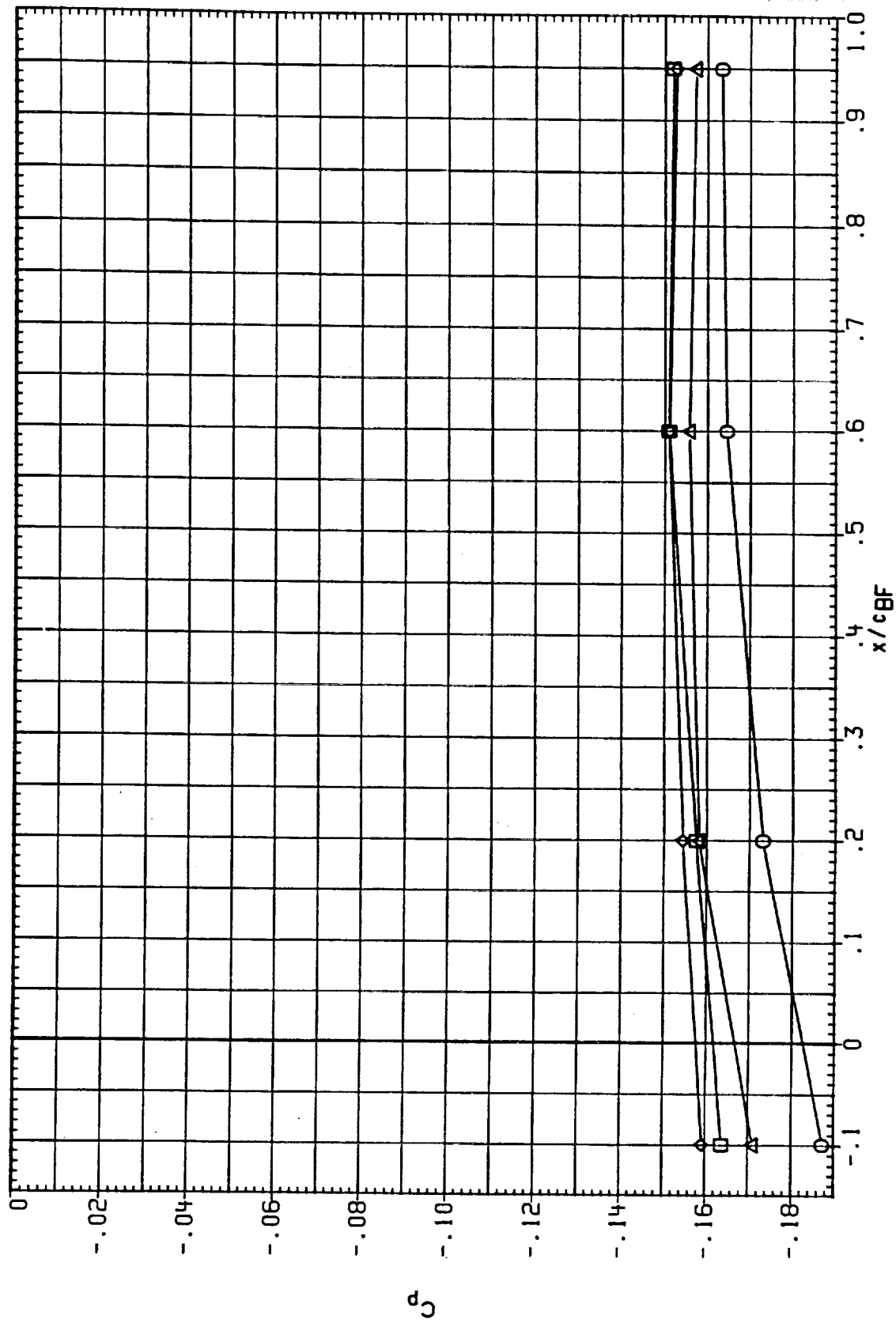


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF201)	□	IA613A, B/L OT+RSRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	.000	10.000	9.000
(RCOF47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	.000	10.000	9.000
(RCOF85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	180.000	10.000	9.000
(RCOF63)	△	IA613A, B/L OT+ASRM+PLUMES S1.2 -BODY FLAP LOWER	1.100	999.000	10.000	5.000

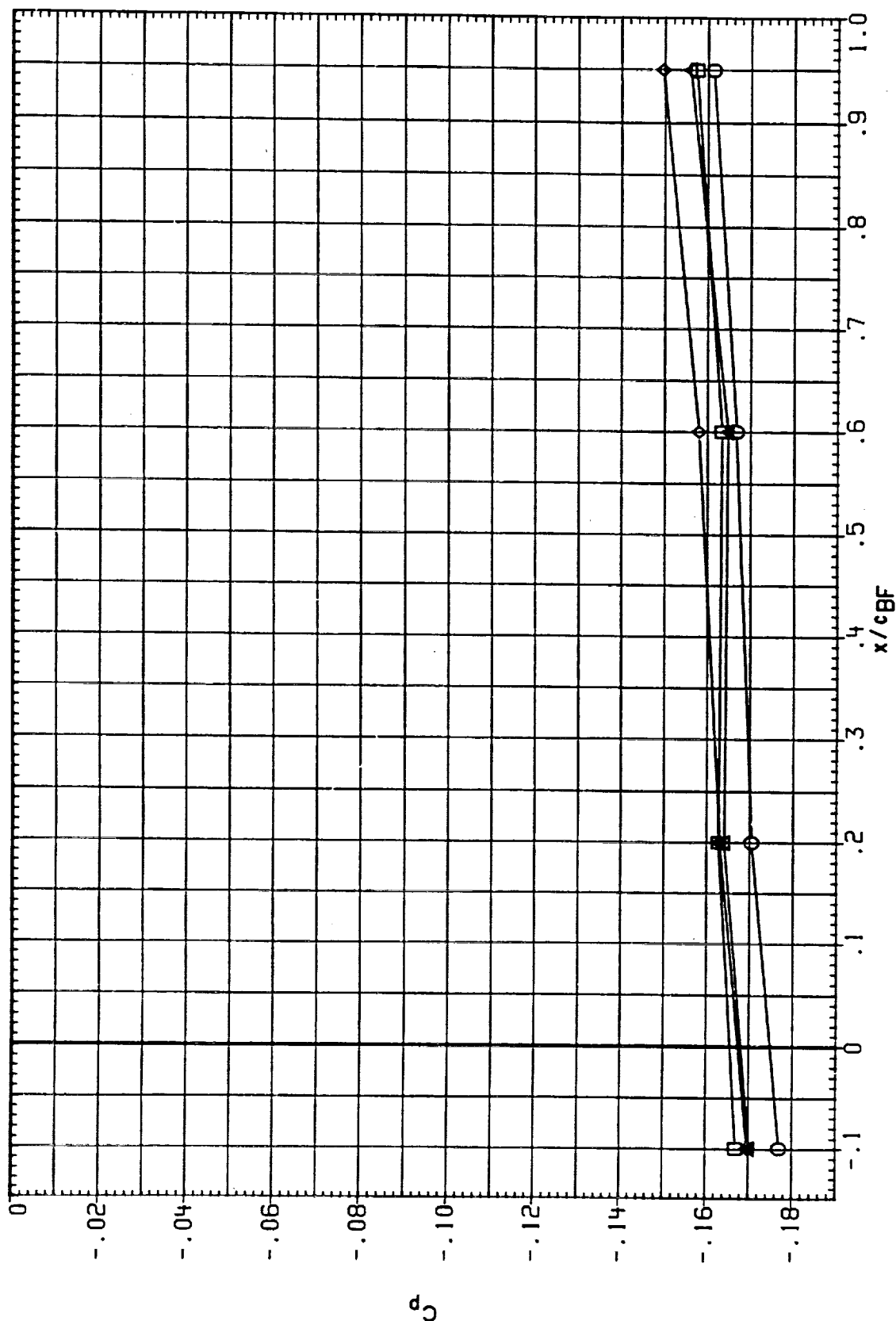


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF21)	○	IA613A, B/L 01+RSRH+PLUMES S1,2	1.150	.000	10.000	9.000
(RCOF48)	□	IA613A, B/L 01+ASRH+PLUMES S1,2	1.150	.000	10.000	9.000
(RCOF86)	◇	IA613A, B/L 01+ASRH+PLUMES S1,2	1.150	180.000	10.000	9.000
(XCOFC4)	△	IA613A, B/L 01+ASRH+PLUMES S1,2	1.150	999.000	10.000	5.000

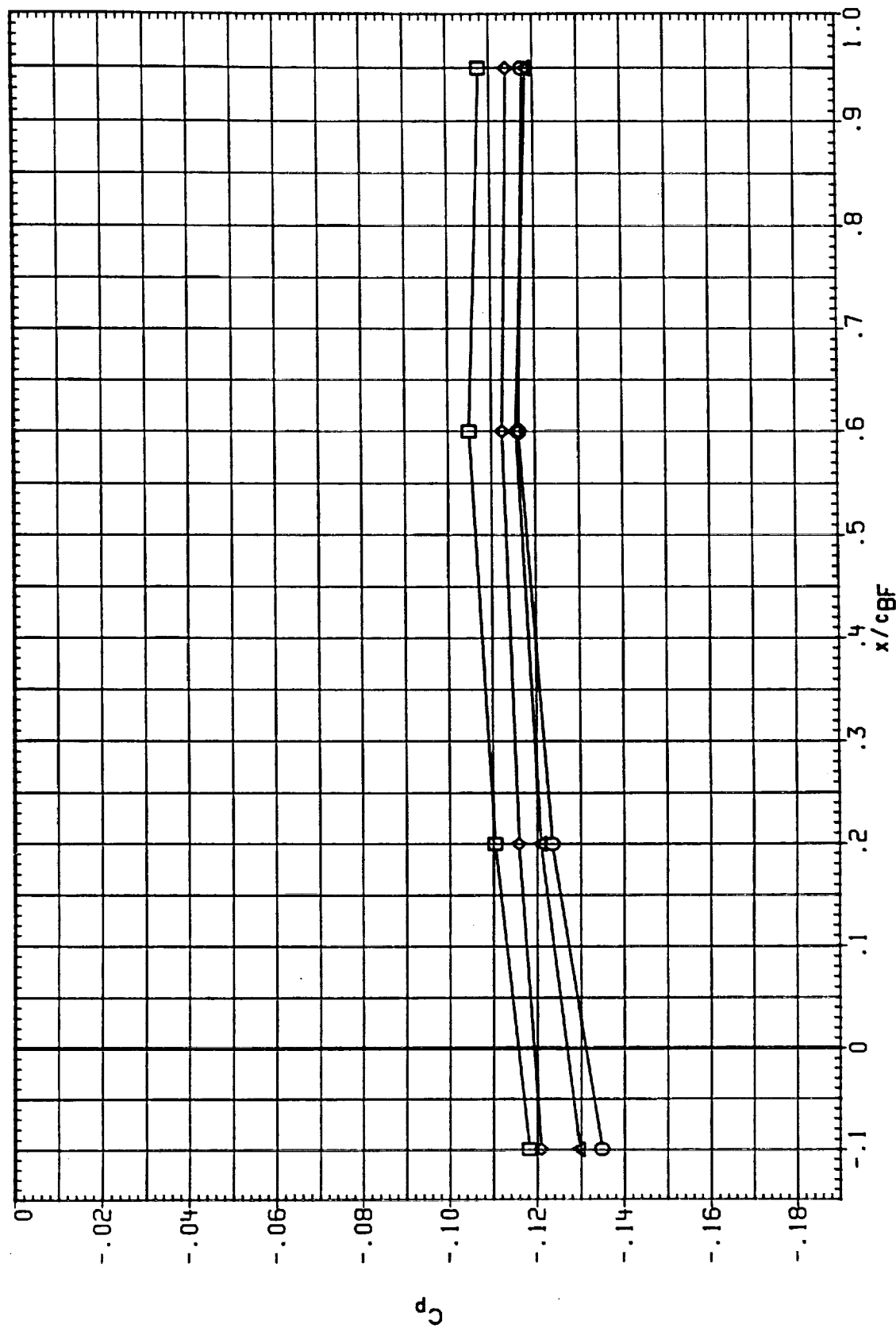


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF21)	□	IA613A,B/L OT+RSRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOF28)	□	IA613A,B/L OT+ASRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOF86)	◇	IA613A,B/L OT+ASRM+PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOFC4)	△	IA613A,B/L OT+ASRM+PLUMES SI.2	1.150	999.000	10.000	5.000

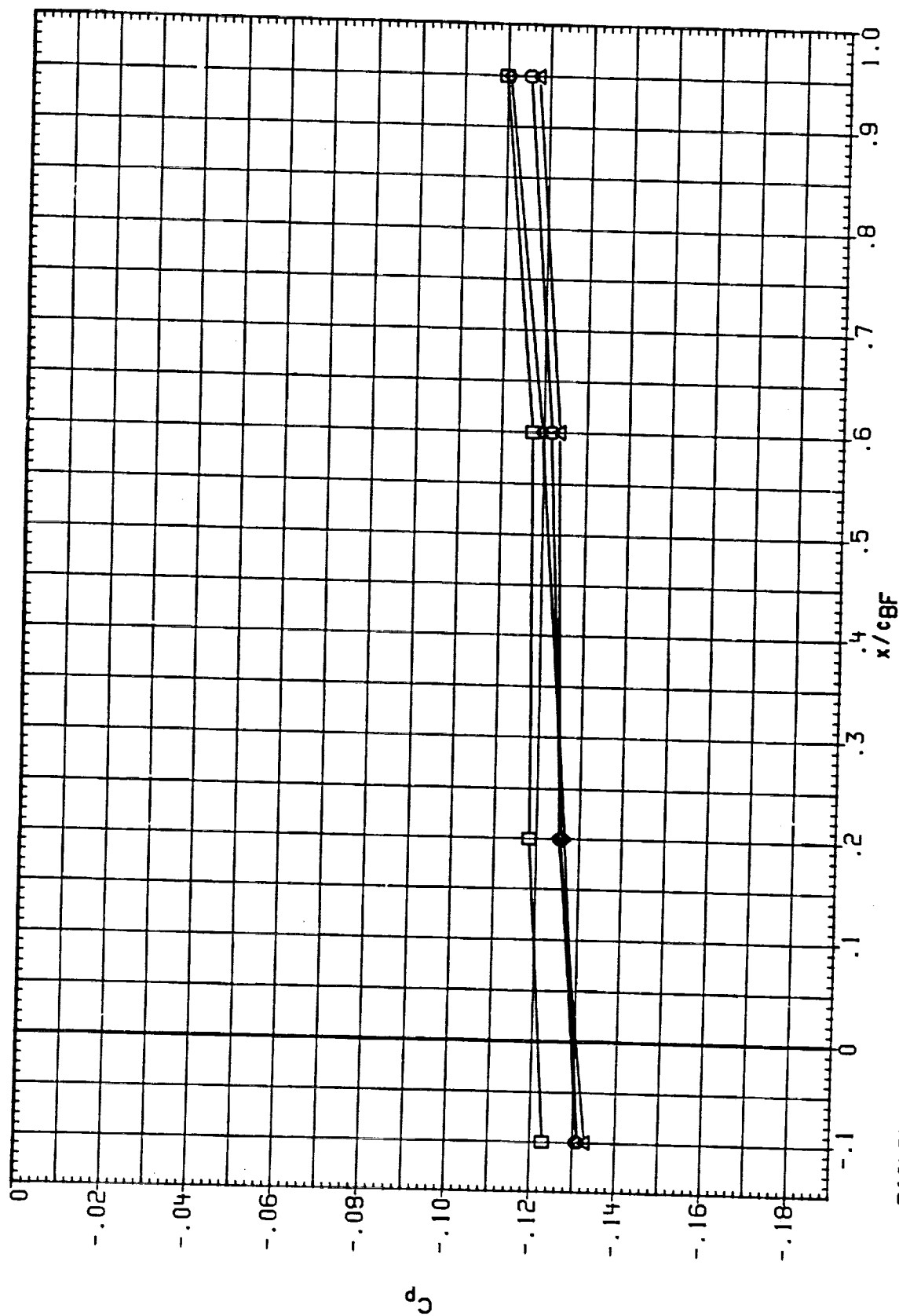


FIGURE 4 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOF22)	□	IA613A, B/L OT+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOF49)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOF87)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOF C5)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	993.000	10.000	5.000

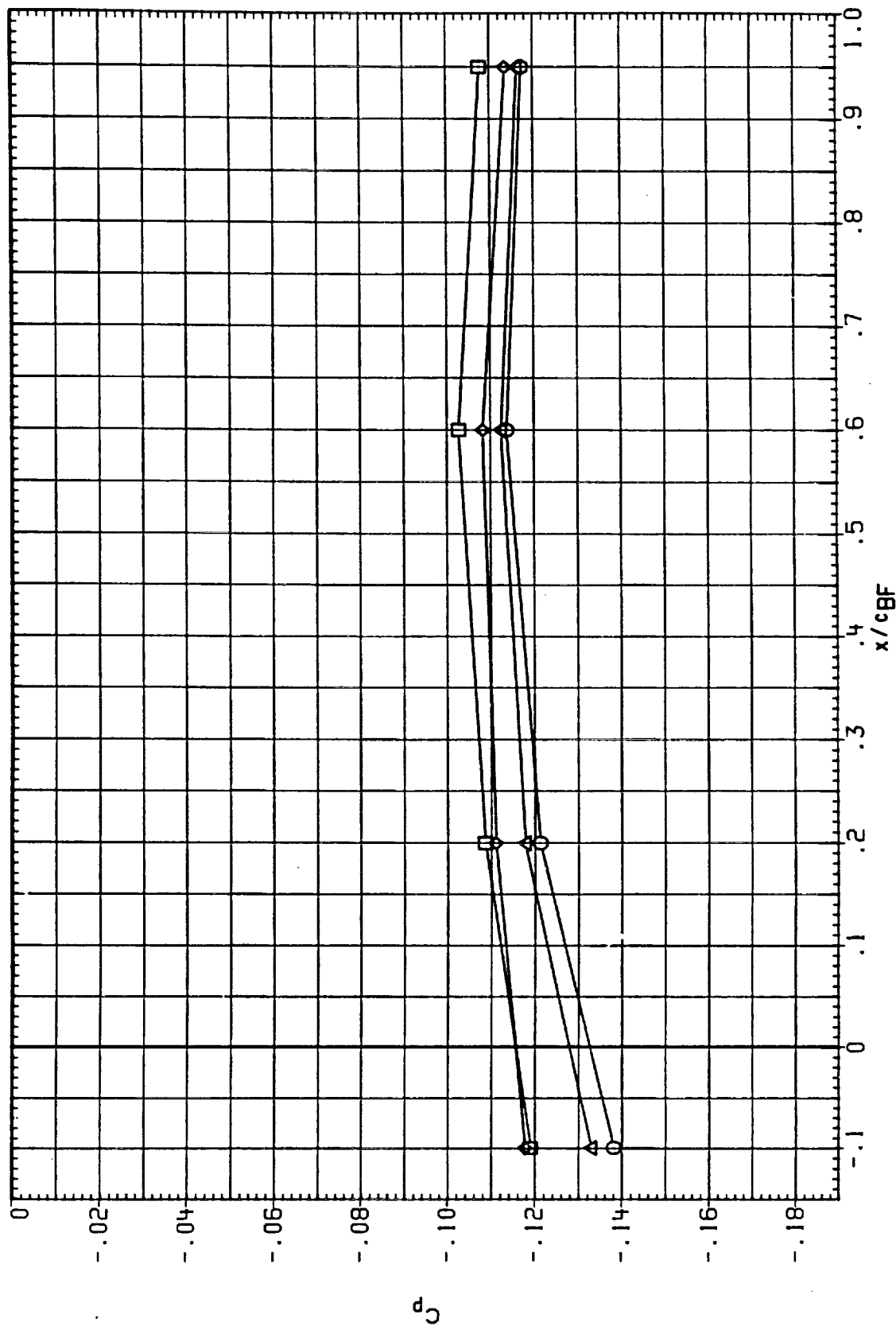


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF 22)	○	IA613A-B/L OT+PSRM+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOF 49)	□	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOF 87)	◇	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	180.000	10.000	9.000
(RCOF 55)	△	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	999.000	10.000	5.000

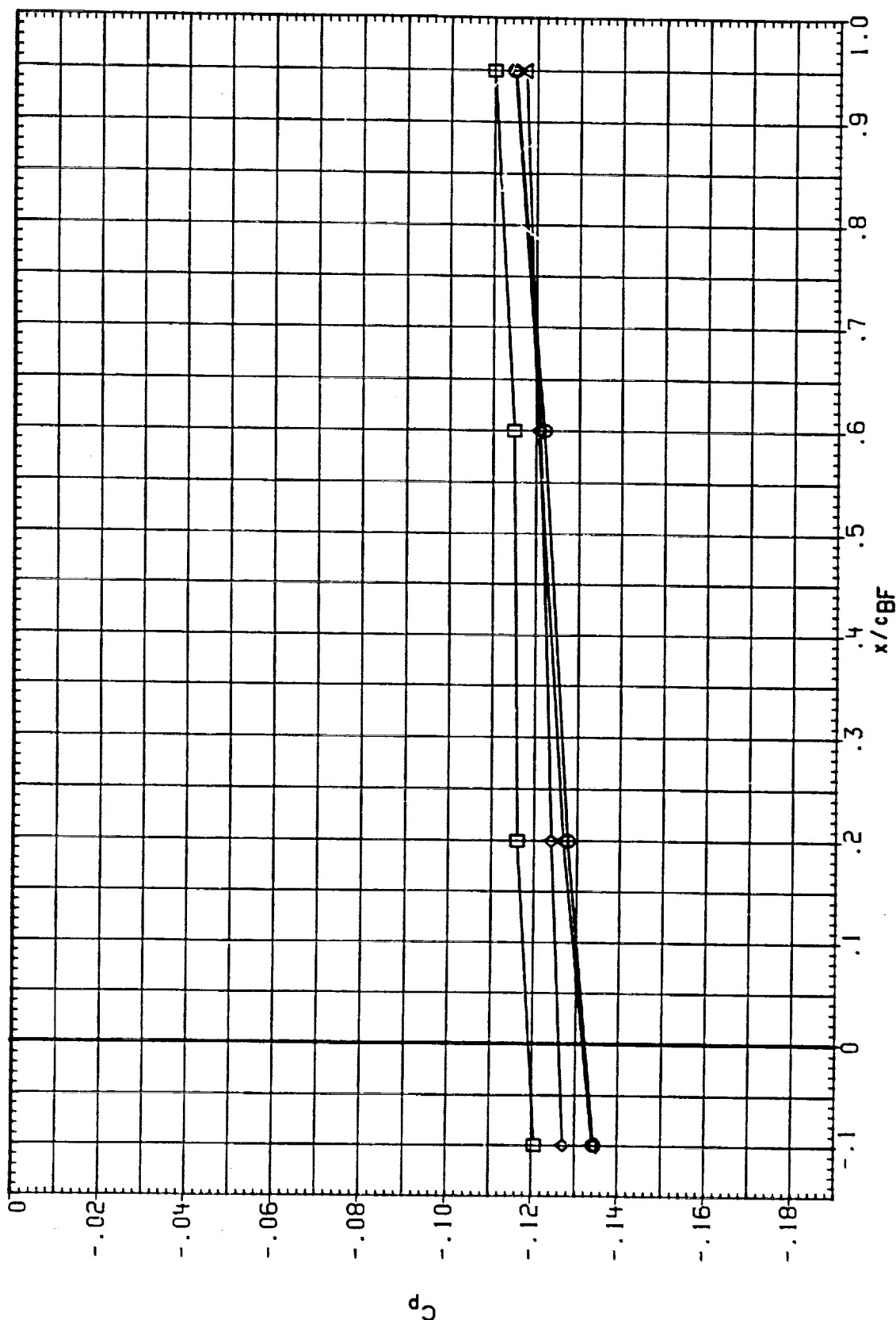


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH6)	○	IA613A, B/L OT+RSRH+PLUMES SI. 2	1.300	.000	10.000	9.000
(RCOF54)	◇	IA613A, B/L OT+ASRH+PLUMES SI. 3	1.300	.000	10.000	5.000
(RCOF89)	◇	IA613A, B/L OT+ASRH+PLUMES SI. 3	1.300	180.000	10.000	5.000
(RCOF67)	△	IA613A, B/L OT+ASRH+PLUMES SI. 3	1.300	999.000	10.000	5.000
		-BODY FLAP LOWER				
		-BODY FLAP LOWER				
		-BODY FLAP LOWER				

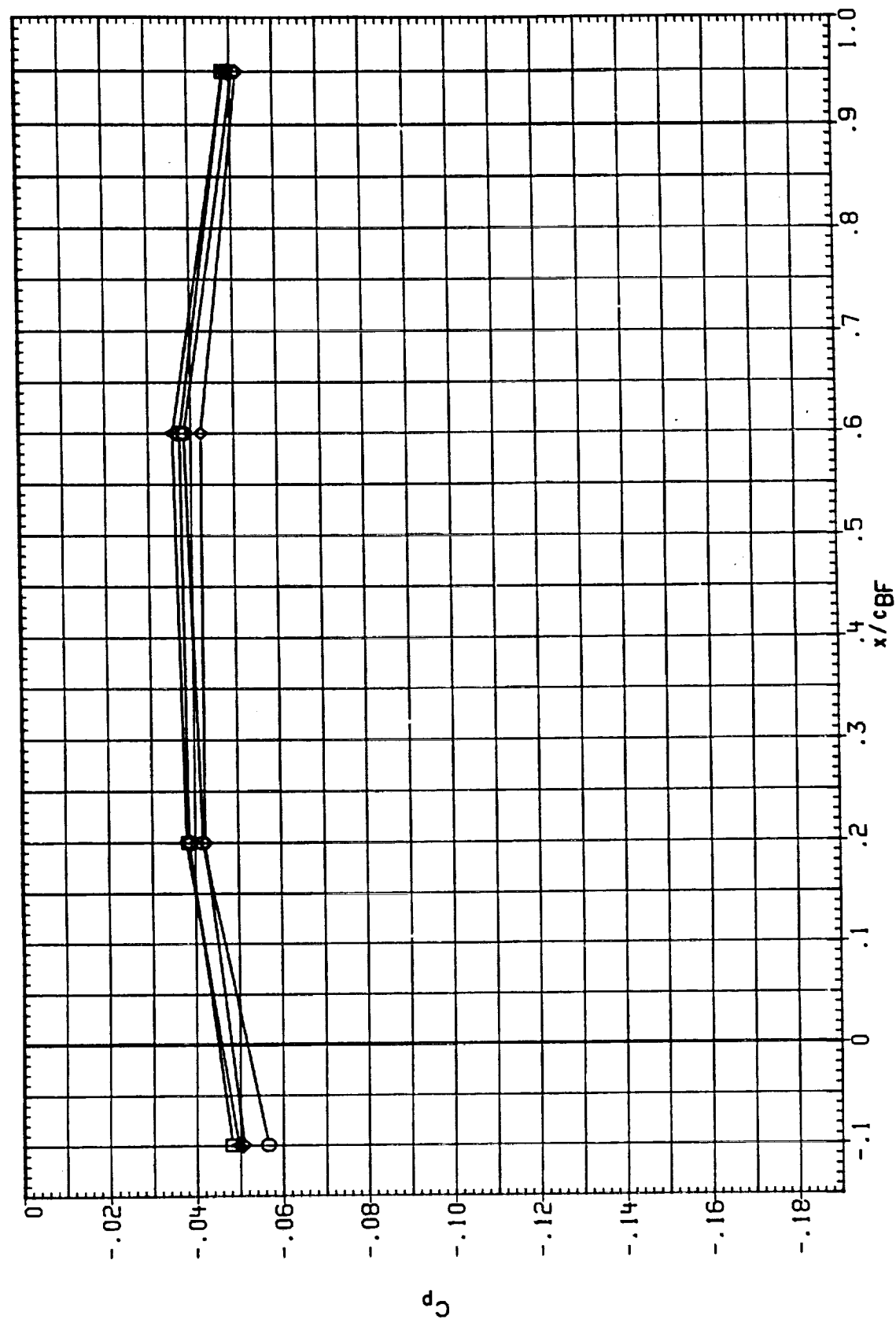


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .100 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF H5)	□	IA613A, B/L OT+RSRM+PLUMES SI.2	1.300	.000	10.000	9.000
(RCOF 54)	□	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	.000	10.000	5.000
(RCOF 89)	△	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	180.000	10.000	5.000
(RCOF C7)	△	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	999.000	10.000	5.000

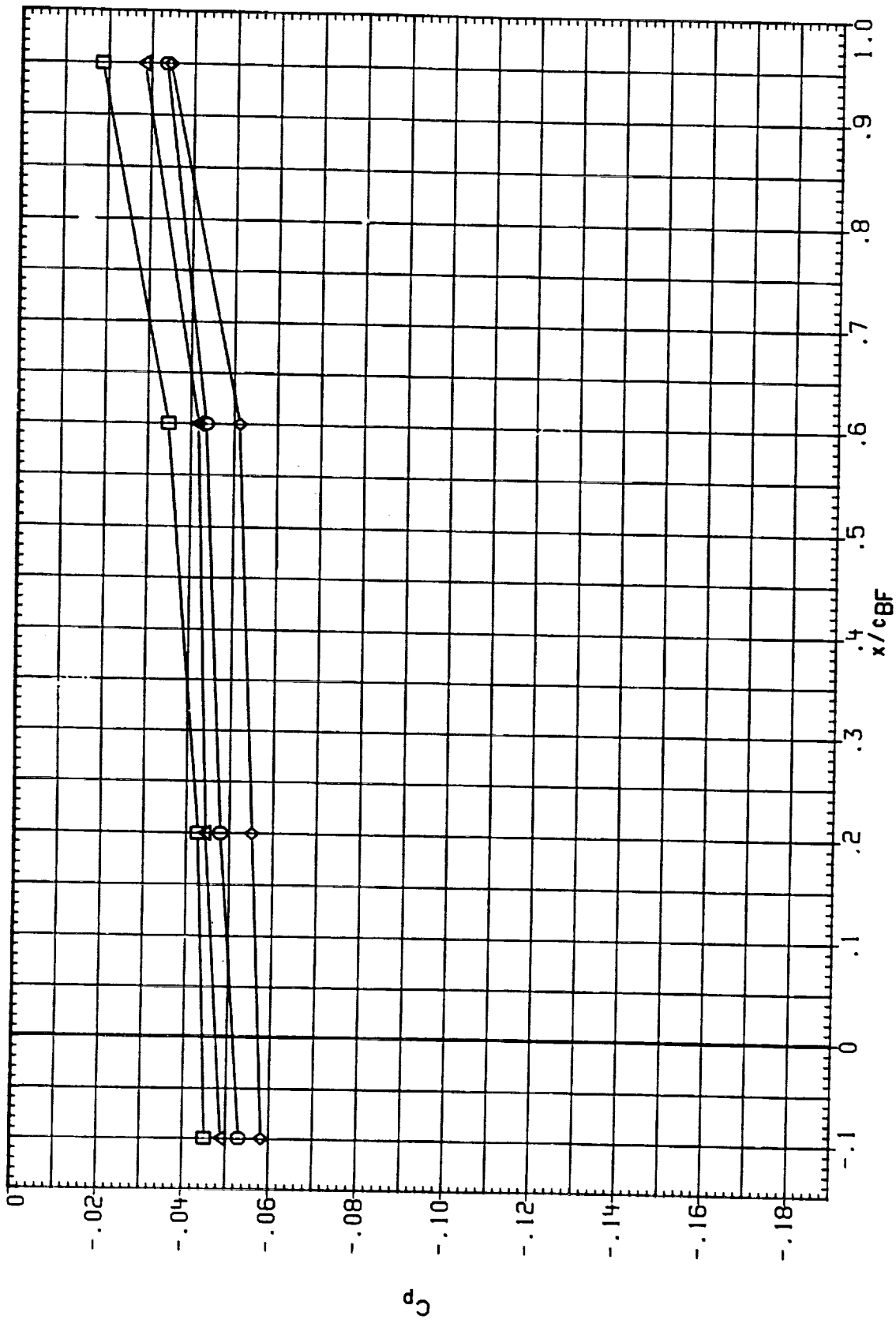


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .500 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH7)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOF55)	□	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOF90)	◇	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOFC8)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	999.000	10.000	5.000
		-BODY FLAP LOWER				
		-BODY FLAP LOWER				
		-BODY FLAP LOWER				
		-BODY FLAP LOWER				



FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH7)	□	IA613A .B/L OT*ASRM*PLUMES SI.2	1.350	.000	10.000	9.000
(RCOF55)	○	IA613A .B/L OT*ASRM*PLUMES SI.3	1.350	.000	10.000	5.000
(RCOF90)	◇	IA613A .B/L OT*ASRM*PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOF68)	△	IA613A .B/L OT*ASRM*PLUMES SI.3	1.350	999.000	10.000	5.000

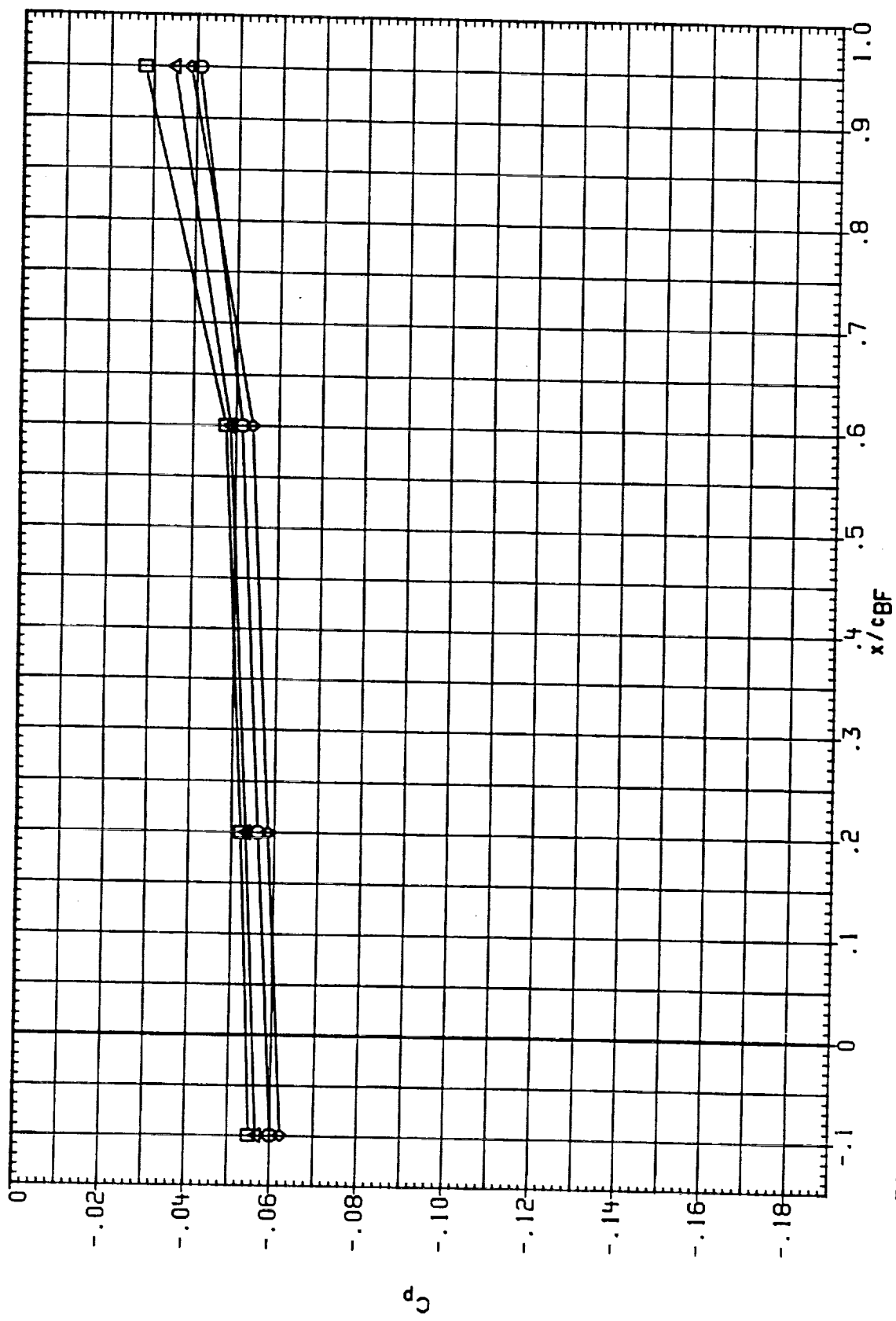


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH8)	○	IA613A.B/L OT+PSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOF56)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOF91)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOF91)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

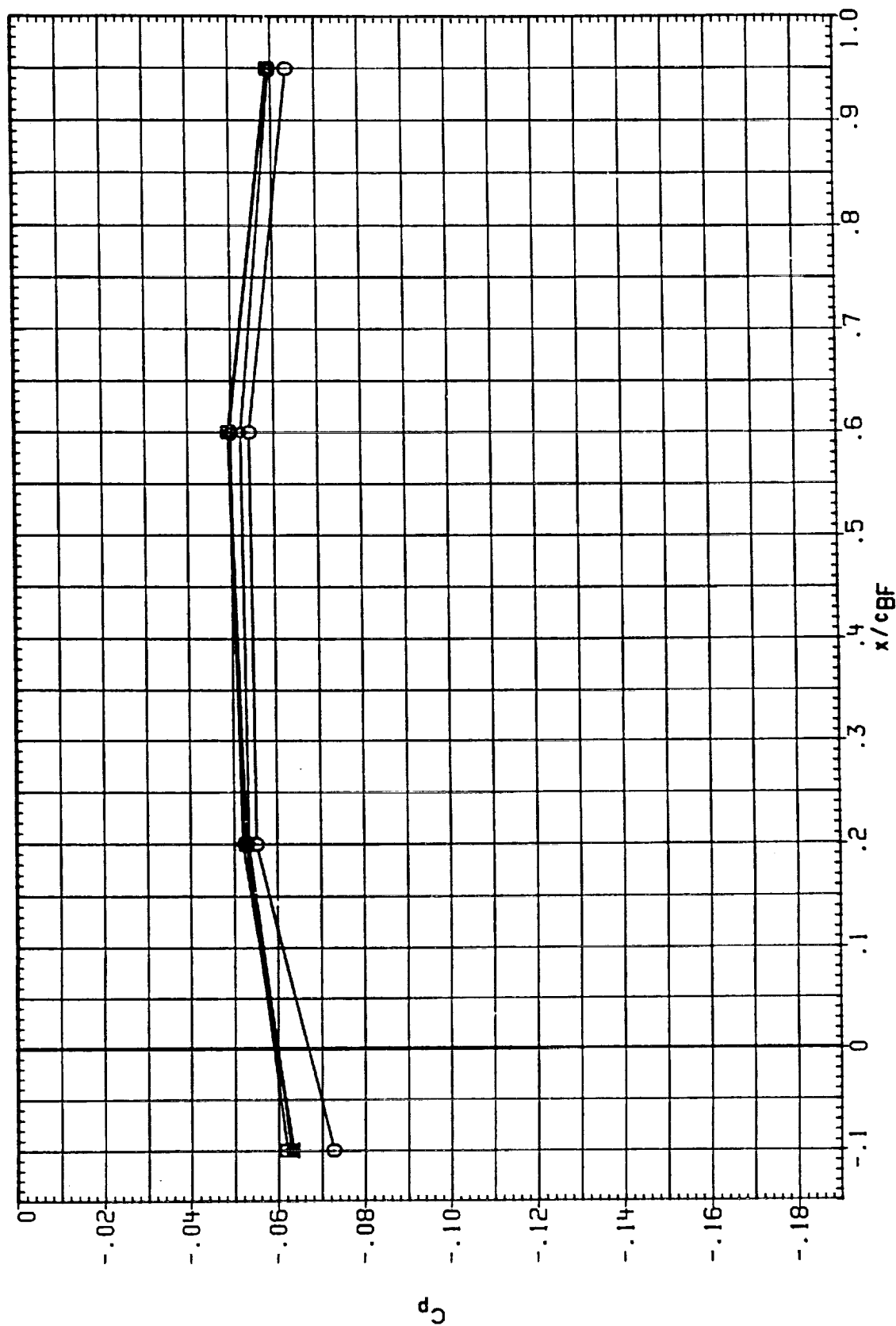


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOF H8)	○	IA613A .B/L OT*PSRM*PLUMES SI.2	1.400	.000	10.000	9.000
(RCOF 56)	□	IA613A .B/L OT*ASRM*PLUMES SI.3	1.400	.000	10.000	5.000
(RCOF 91)	◇	IA613A .B/L OT*ASRM*PLUMES SI.3	1.400	180.000	10.000	5.000
(RCOF C9)	△	IA613A .B/L OT*ASRM*PLUMES SI.3	1.400	999.000	10.000	5.000

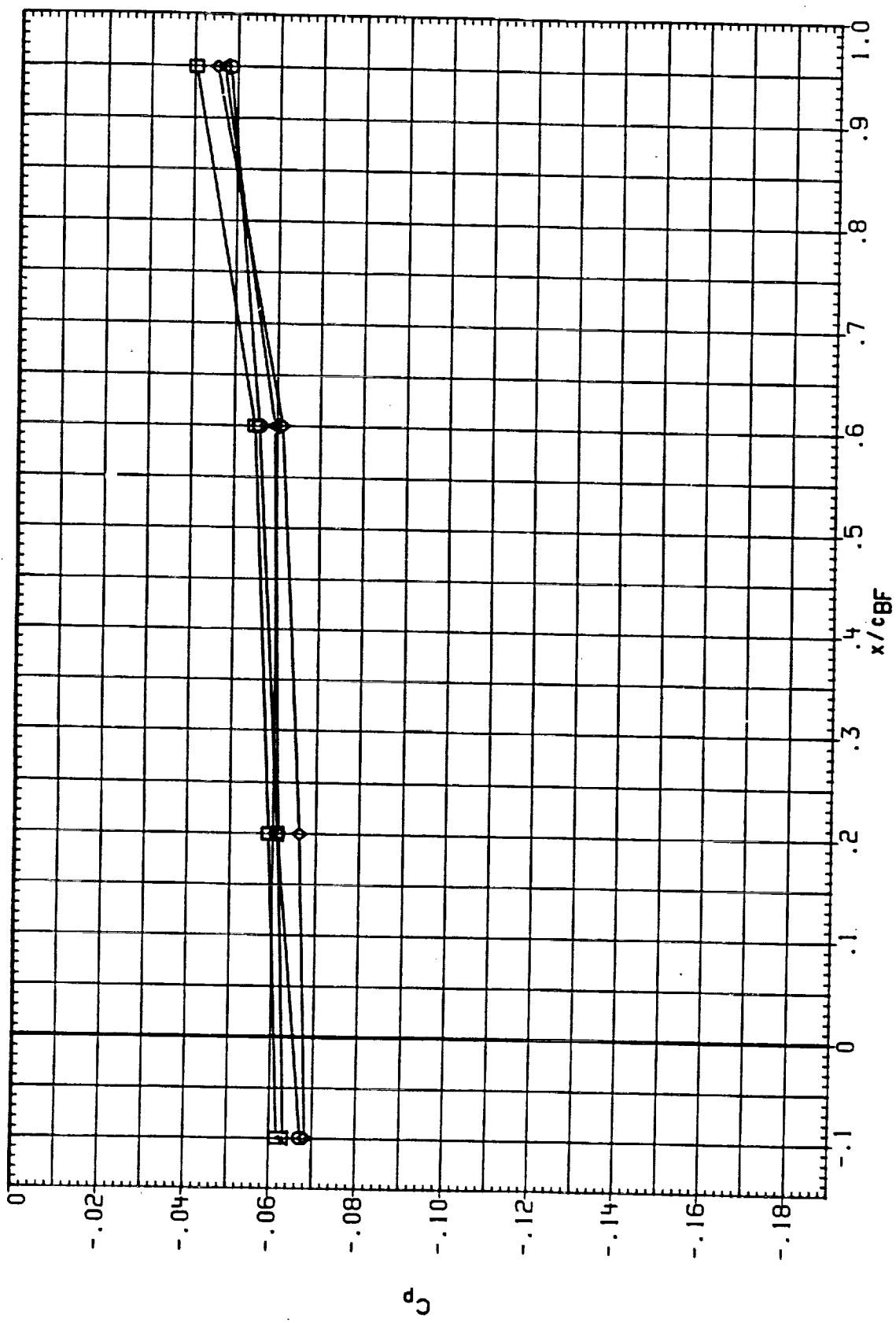


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOFH9)	○	IA613A,B/L OT+RSRH+PLUMES SI.2	1.550	.000	10.000	9.000
(RCOF57)	□	IA613A,B/L OT+ASRH+PLUMES SI.3	1.550	.000	10.000	5.000
(RCOF92)	◇	IA613A,B/L OT+ASRH+PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOF00)	△	IA613A,B/L OT+ASRH+PLUMES SI.3	1.550	999.000	10.000	5.000

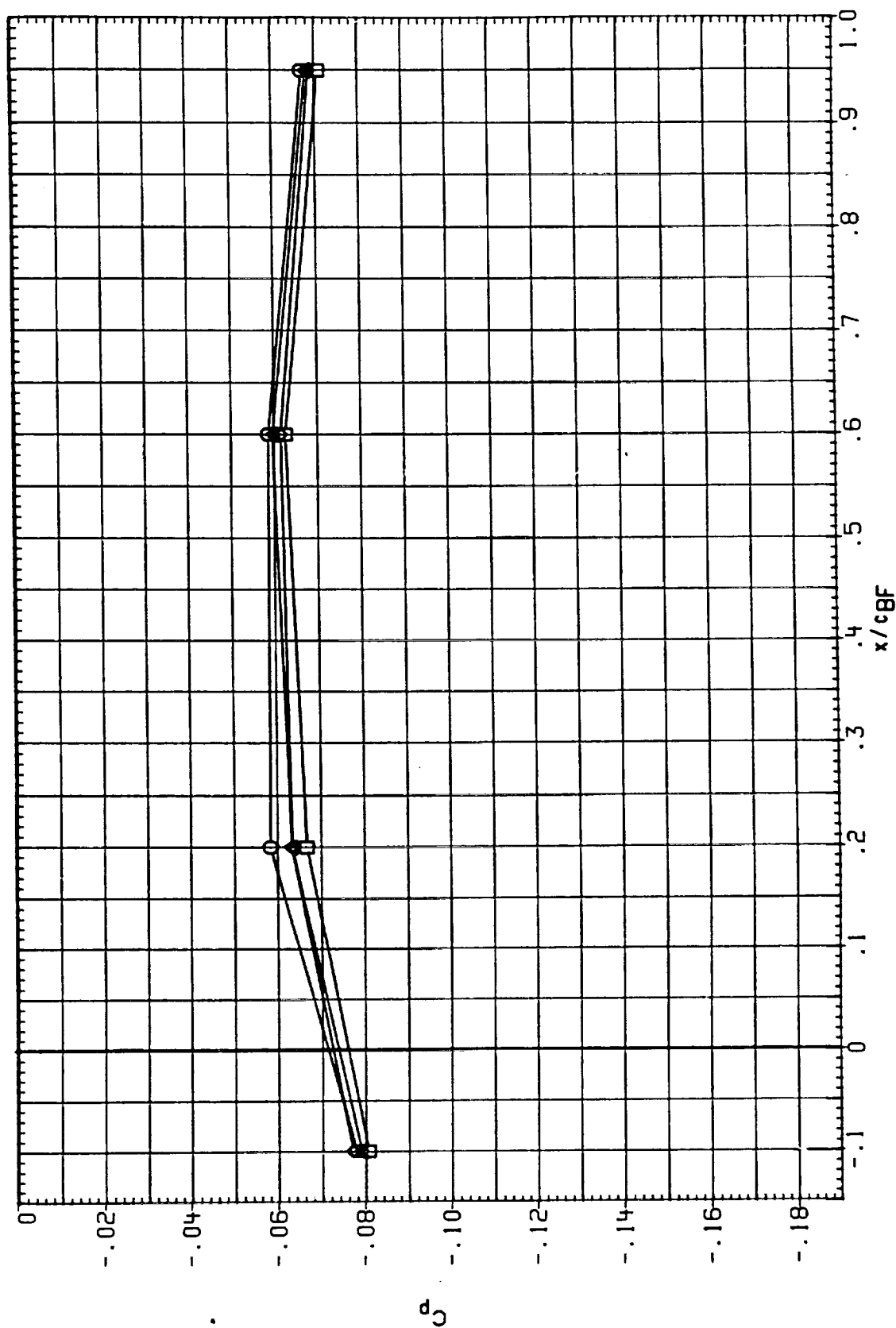


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER BODY FLAP - LOWER SURFACE  
BETA = .000 ETA = .100 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOFH9)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.550	.000	10.000	9.000
(RCOF57)	□	IA613A, B/L OT+ASRH+PLUMES SI.3	1.550	.000	10.000	5.000
(RCOF92)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOF00)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.550	999.000	10.000	5.000

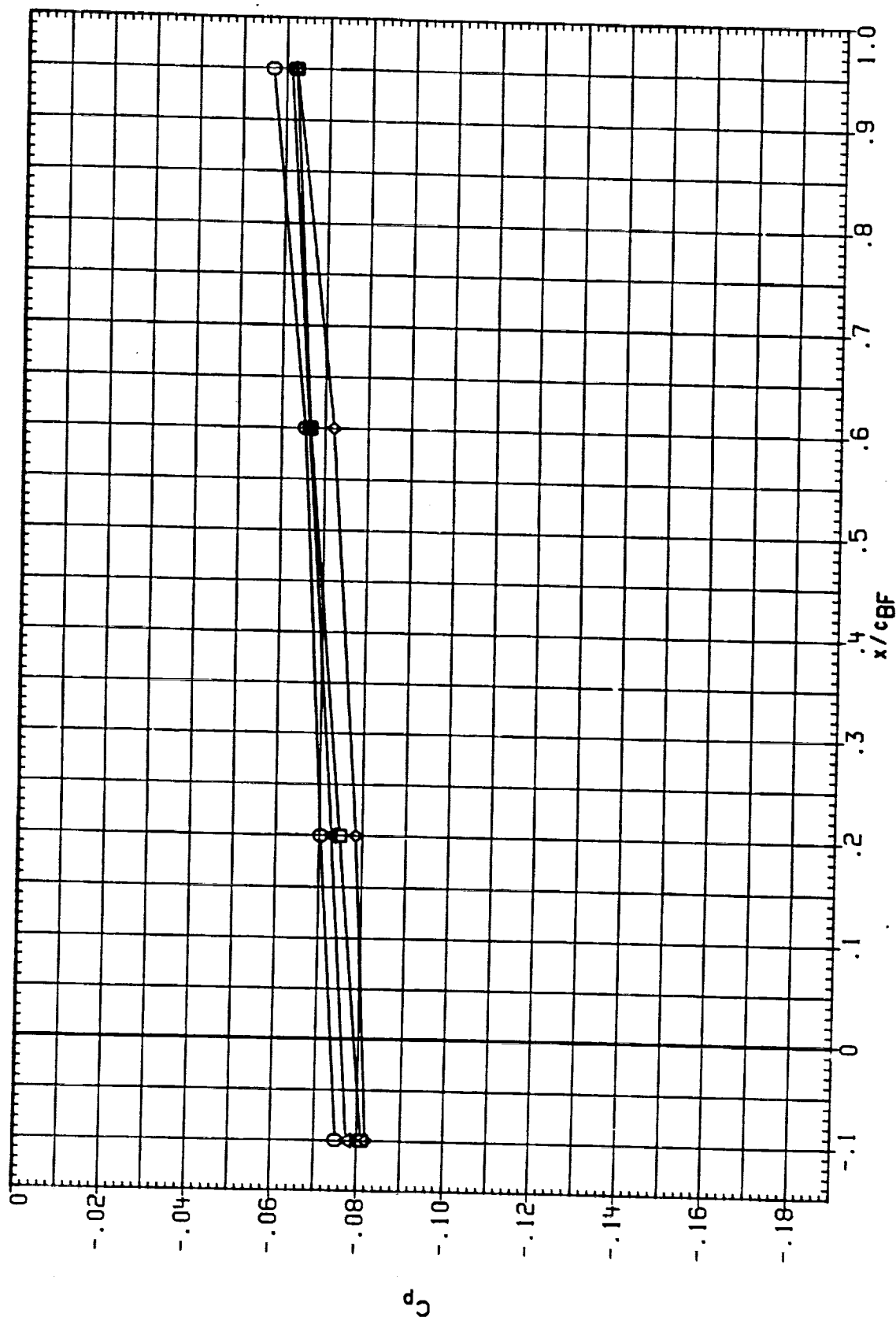


FIGURE 4 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER BODY FLAP - LOWER SURFACE  
 BETA = .000 ETA = .500 ALPHA = .000

(RCOV15)	□	IA613A.B/L	OT+PSRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	.000	10.000	9.000
(RCOV42)	□	IA613A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	.000	10.000	9.000
(RCOV80)	◇	IA613A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	180.000	10.000	9.000
(RCOVCI)	△	IA613A.B/L	OT+ASRH+PLUMES	SI.2	-VERT. TAIL	(LS)	.600	999.000	10.000	9.000

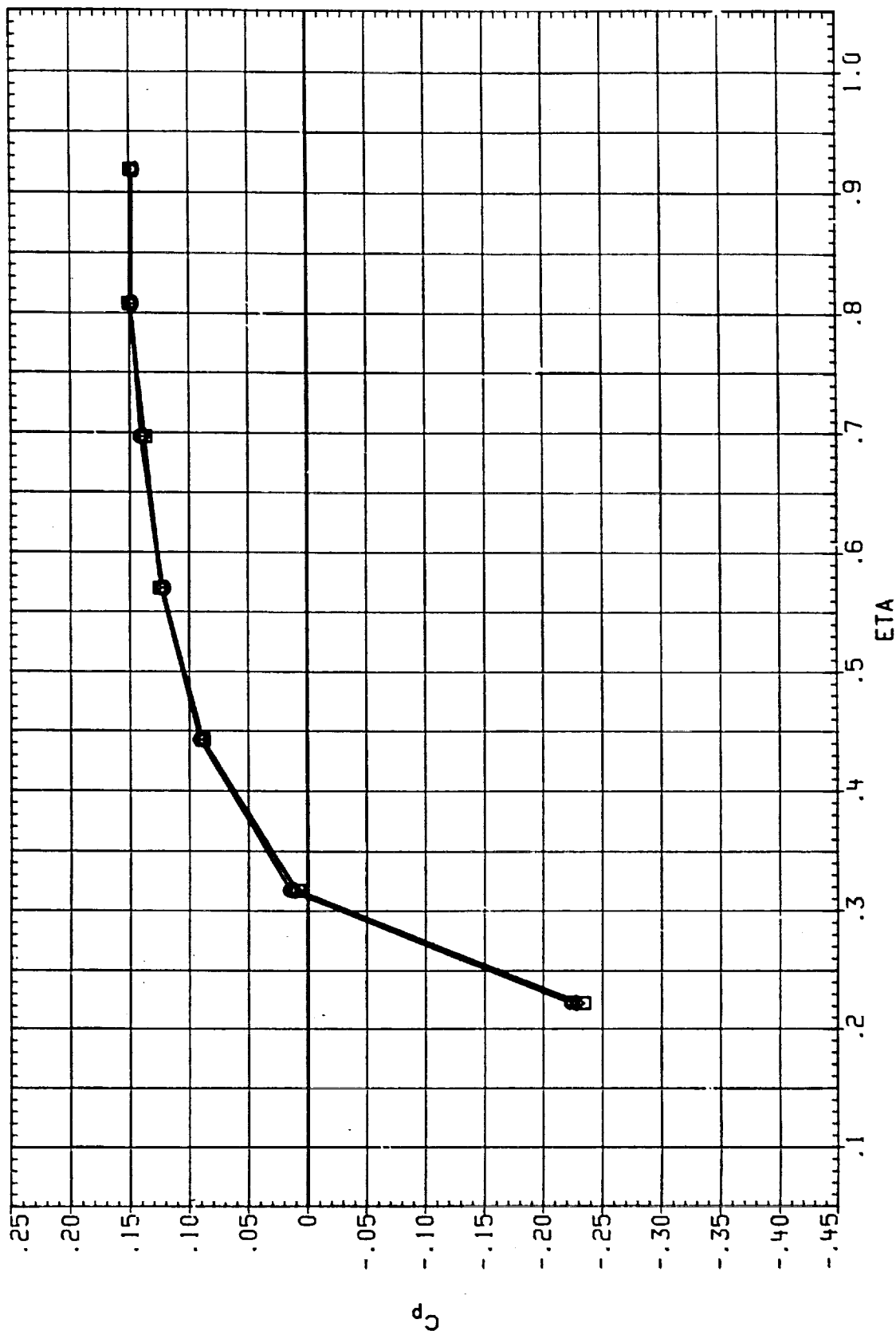


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV16)	□	IA613A, B/L 01+RSRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOV43)	□	IA613A, B/L 01+ASRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOV81)	◇	IA613A, B/L 01+ASRH+PLUMES SI.2	.800	180.000	10.000	9.000

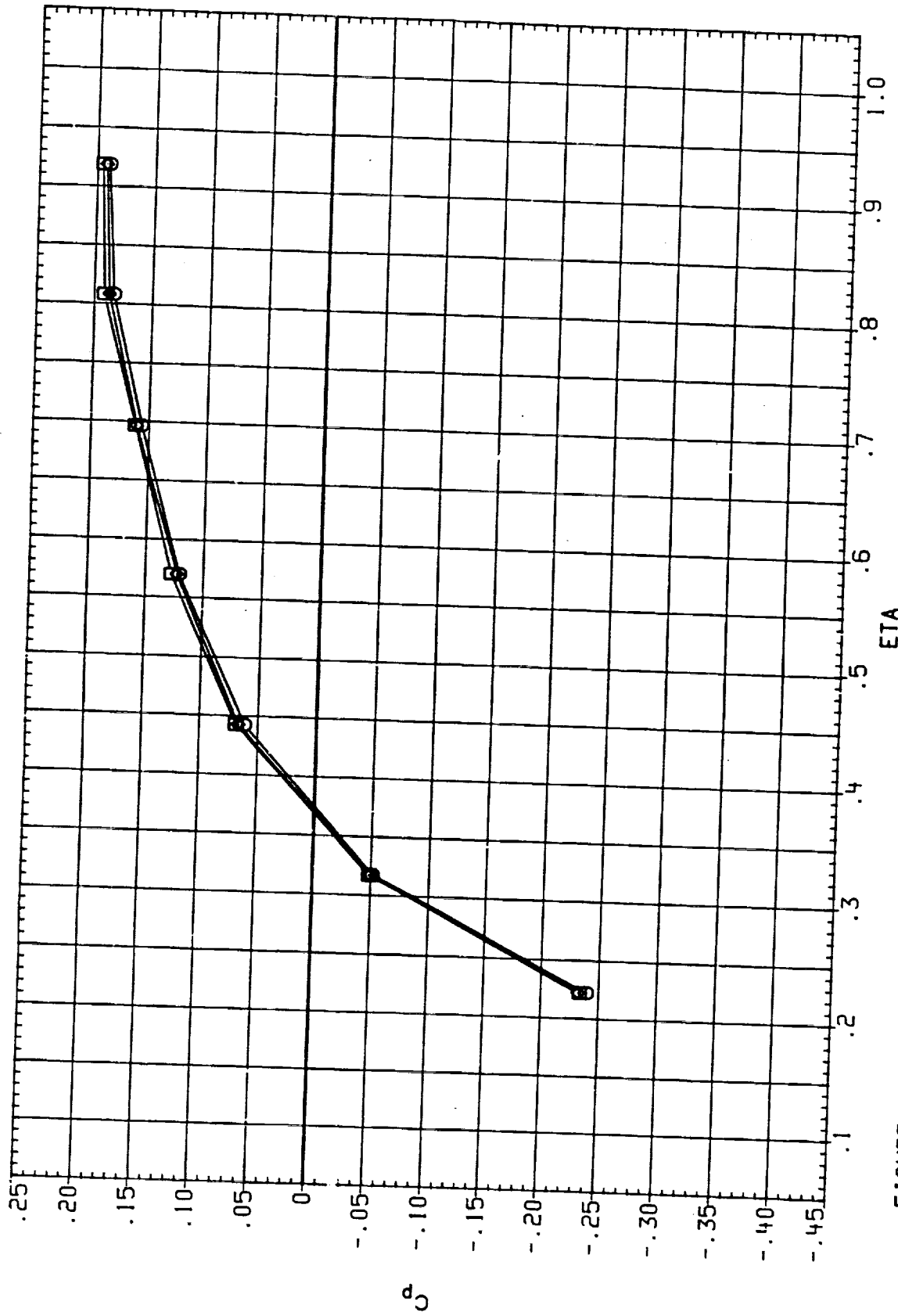


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 XV/CV = 1.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-VERT. TAIL (LS)	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV17)	○	IA613A,B/L 01+RSRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV44)	○	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	.000	10.000	9.000
(RCOV82)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	180.000	10.000	9.000
(RCOV2)	△	IA613A,B/L 01+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	.900	999.000	10.000	5.000

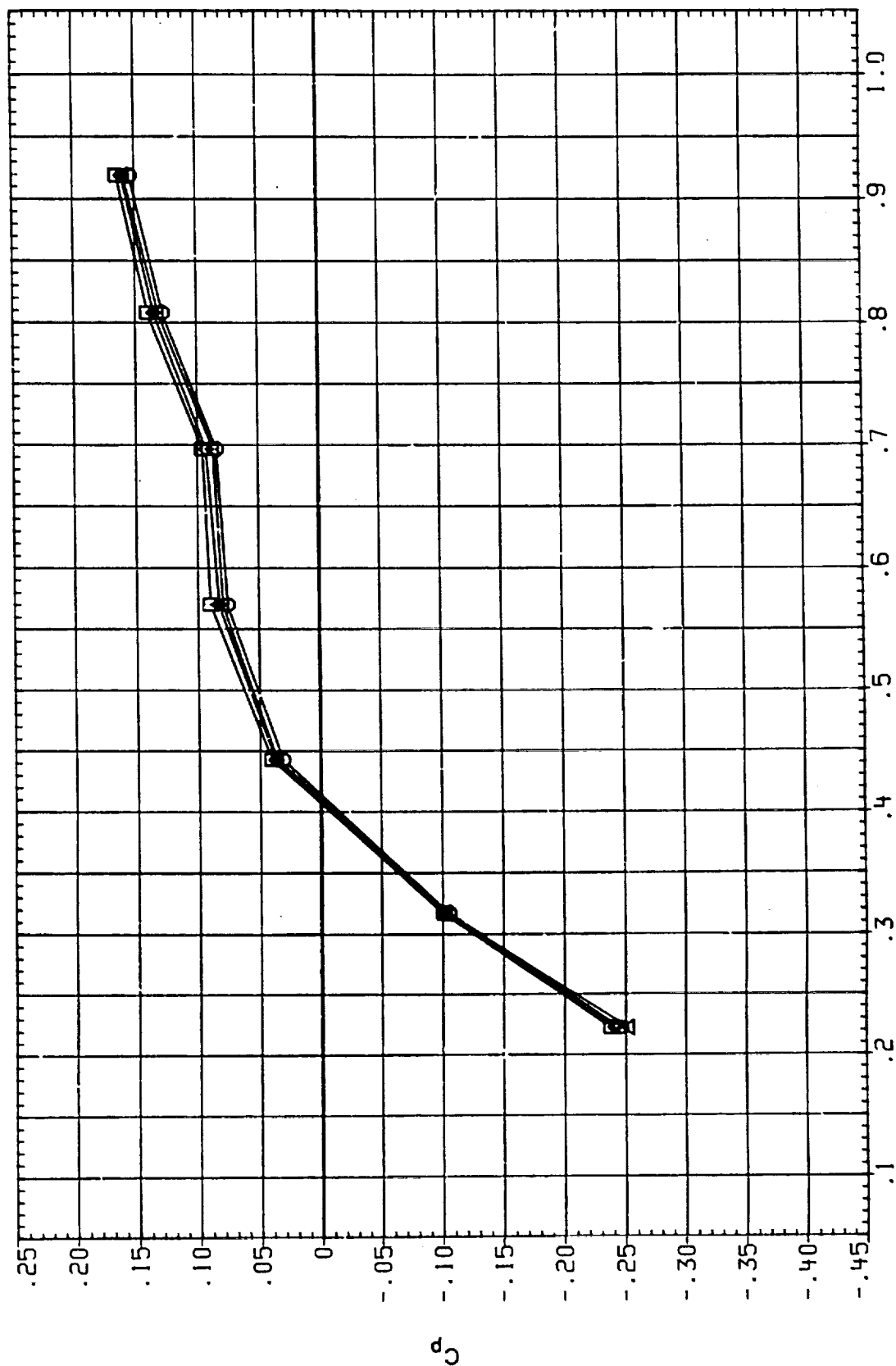


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IC400X	1B-ELV	OB-ELV
(RCOV18)	○	IA613A.B/L OT+RSRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOV45)	◻	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOV83)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	180.000	10.000	9.000

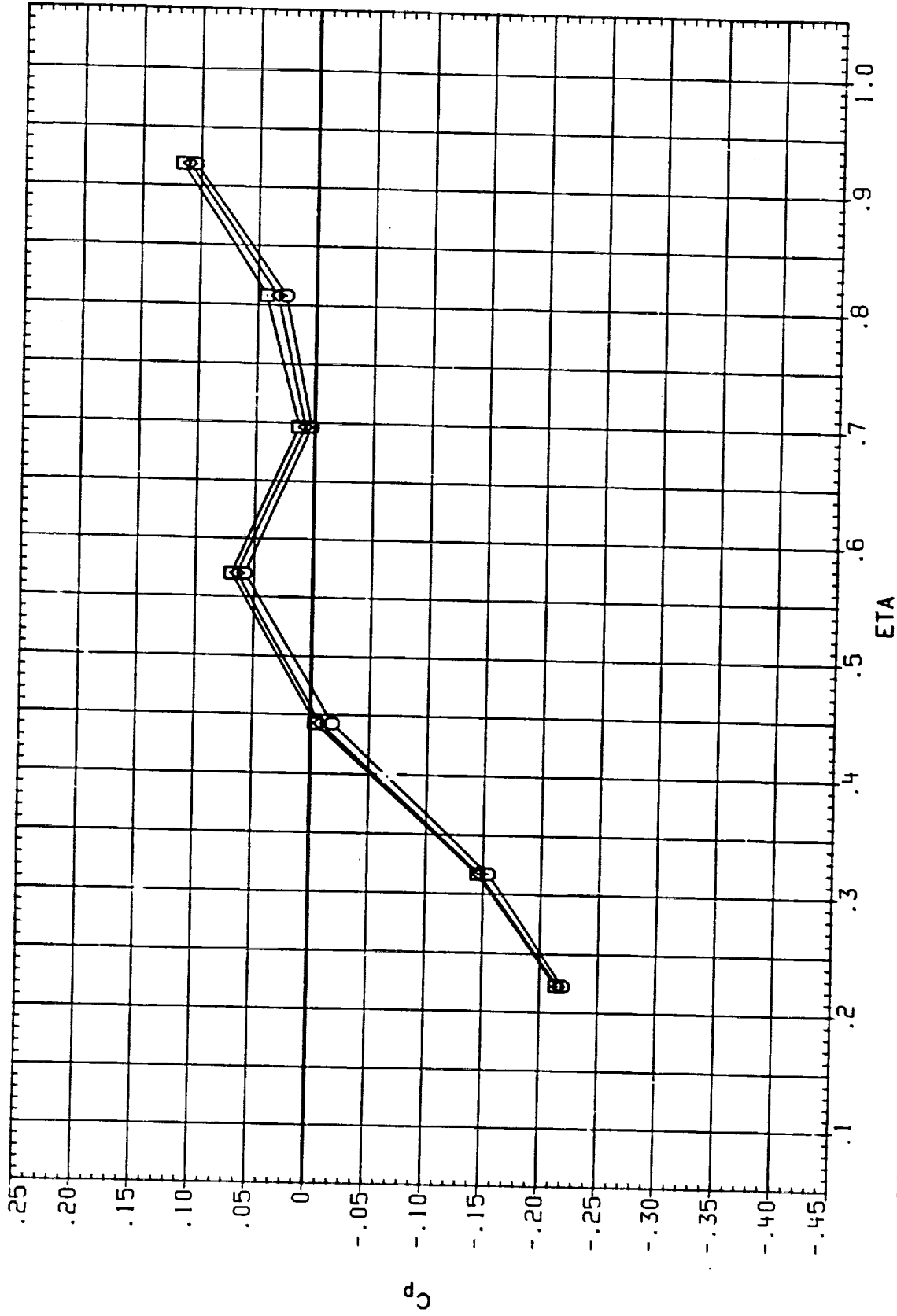


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV19)	( )	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOV46)	( )	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOV84)	( )	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	180.000	10.000	9.000

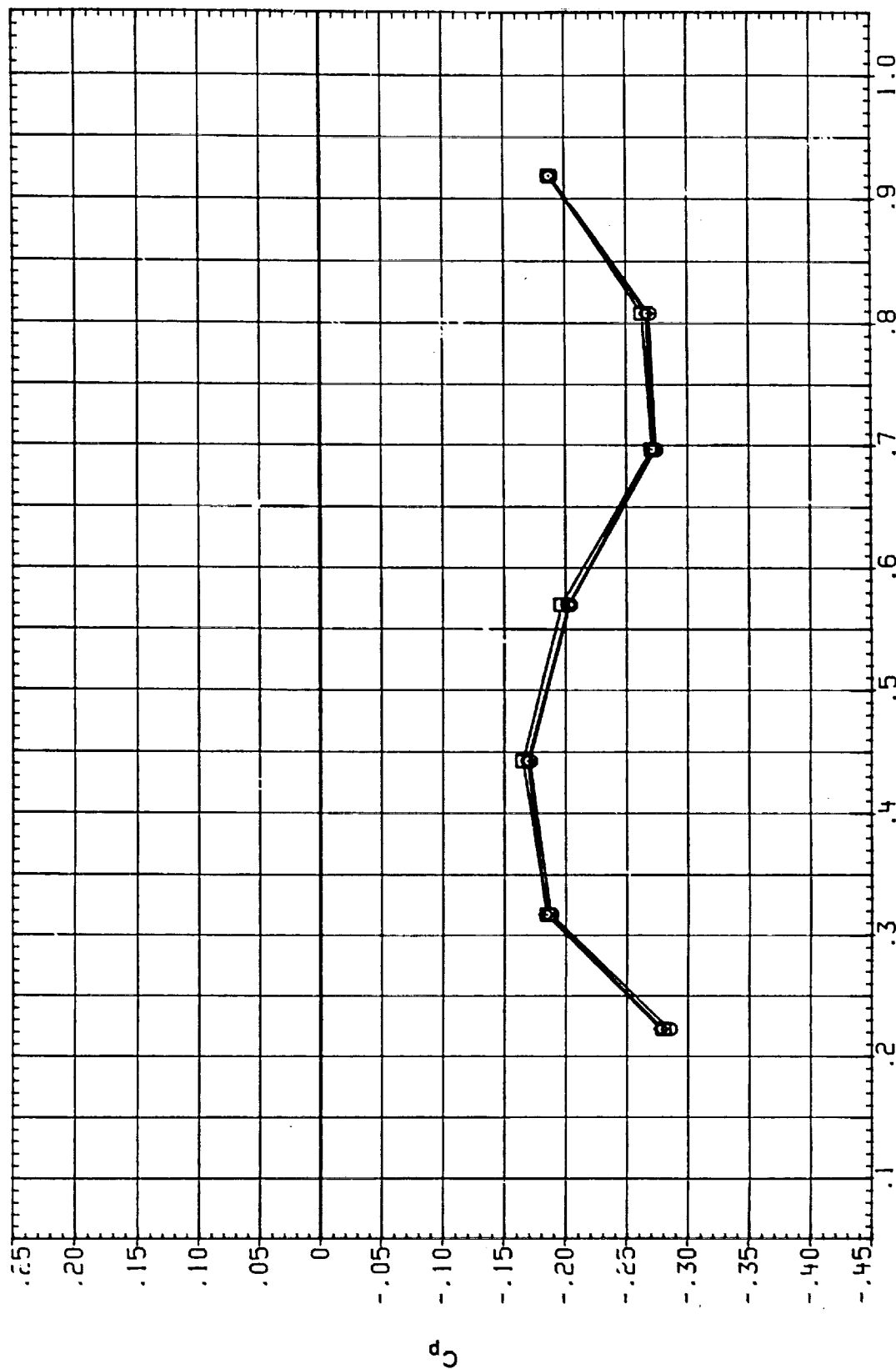


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL  
BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	VERT. TAIL (LS)	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV20)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	-VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV47)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	1.100	.000	10.000	9.000
(RCOV85)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	1.100	180.000	10.000	9.000
(RCOV63)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	-VERT. TAIL (LS)	1.100	999.000	10.000	5.000

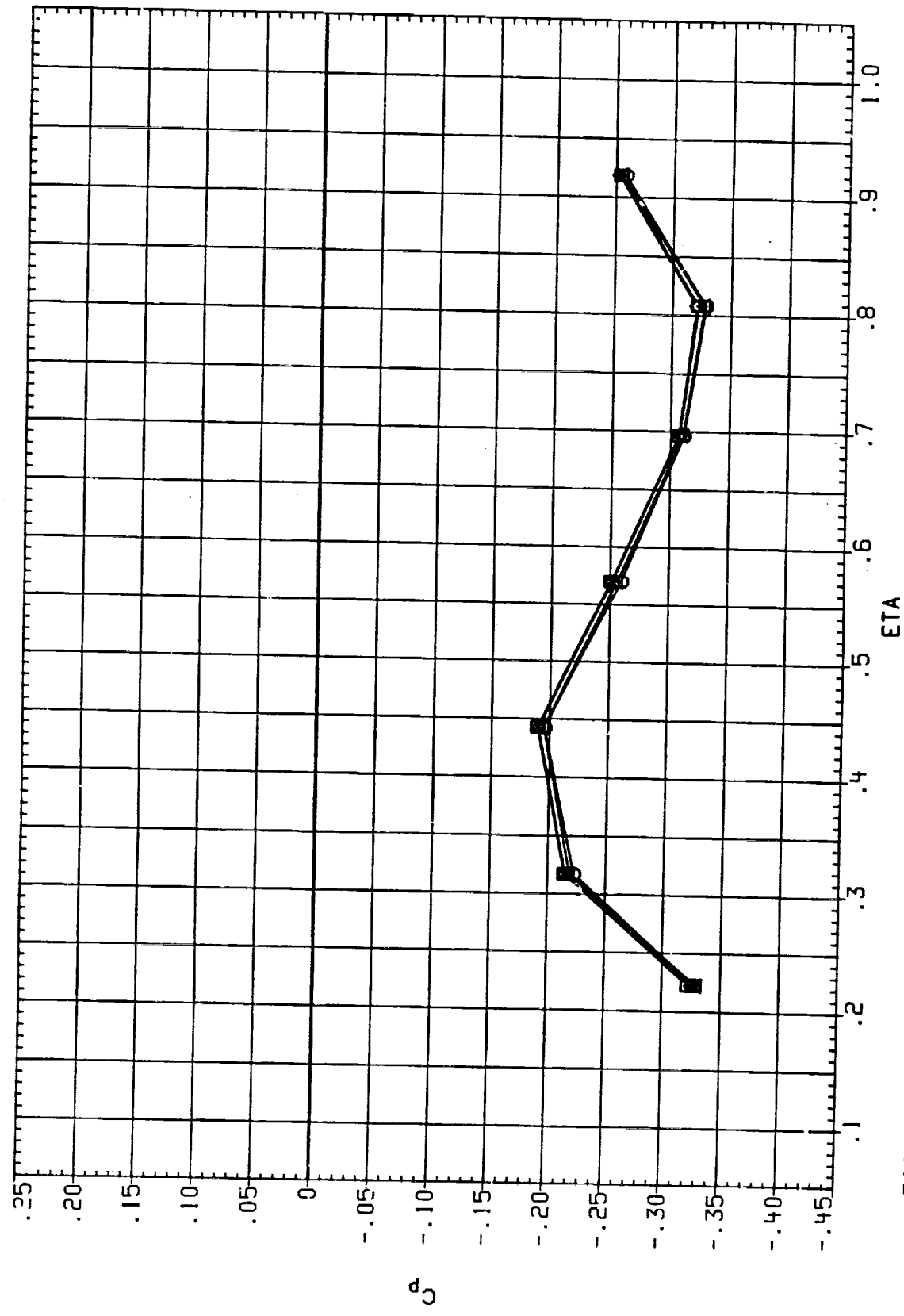


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEAROX	IB-ELV	OB-ELV
(RCOV2:1)	□	IA613A.8/L OT+ASRM+PLUES S1.2 -VERT. TAIL (LS)	1.150	.000	10.000	9.000
(RCOV4:8)	◇	IA613A.8/L OT+ASRM+PLUES S1.2 -VERT. TAIL (LS)	1.150	.000	10.000	9.000
(RCOV8:1)	◇	IA613A.8/L OT+ASRM+PLUES S1.2 -VERT. TAIL (LS)	1.150	180.000	10.000	9.000
(XCOVC4)	△	IA613A.8/L OT+ASRM+PLUES S1.2 -VERT. TAIL (LS)	1.150	999.000	10.000	5.000

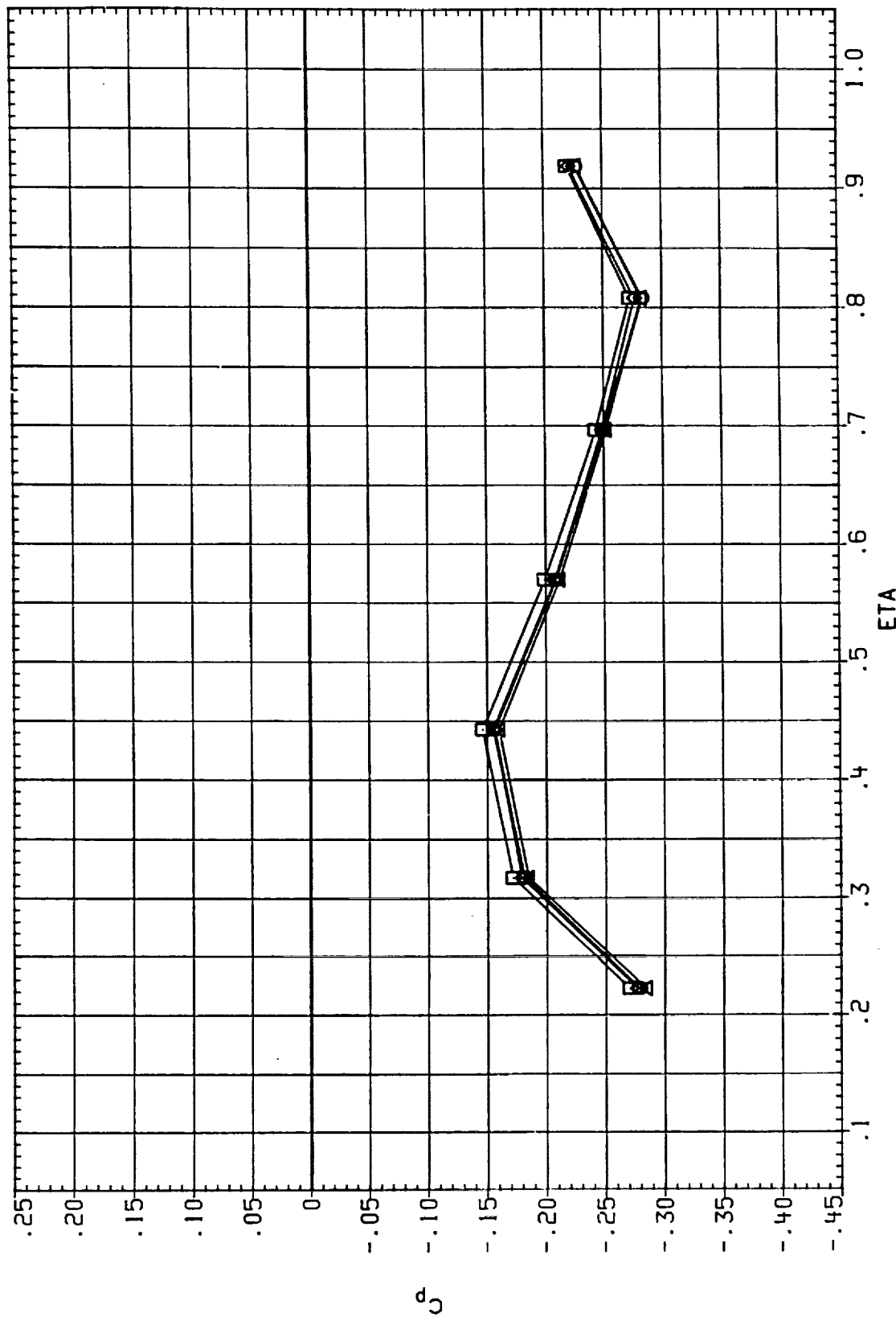


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV22)	□	IA613A,B/L 01+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOV49)	□	IA613A,B/L 01+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOV87)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOV65)	△	IA613A,B/L 01+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

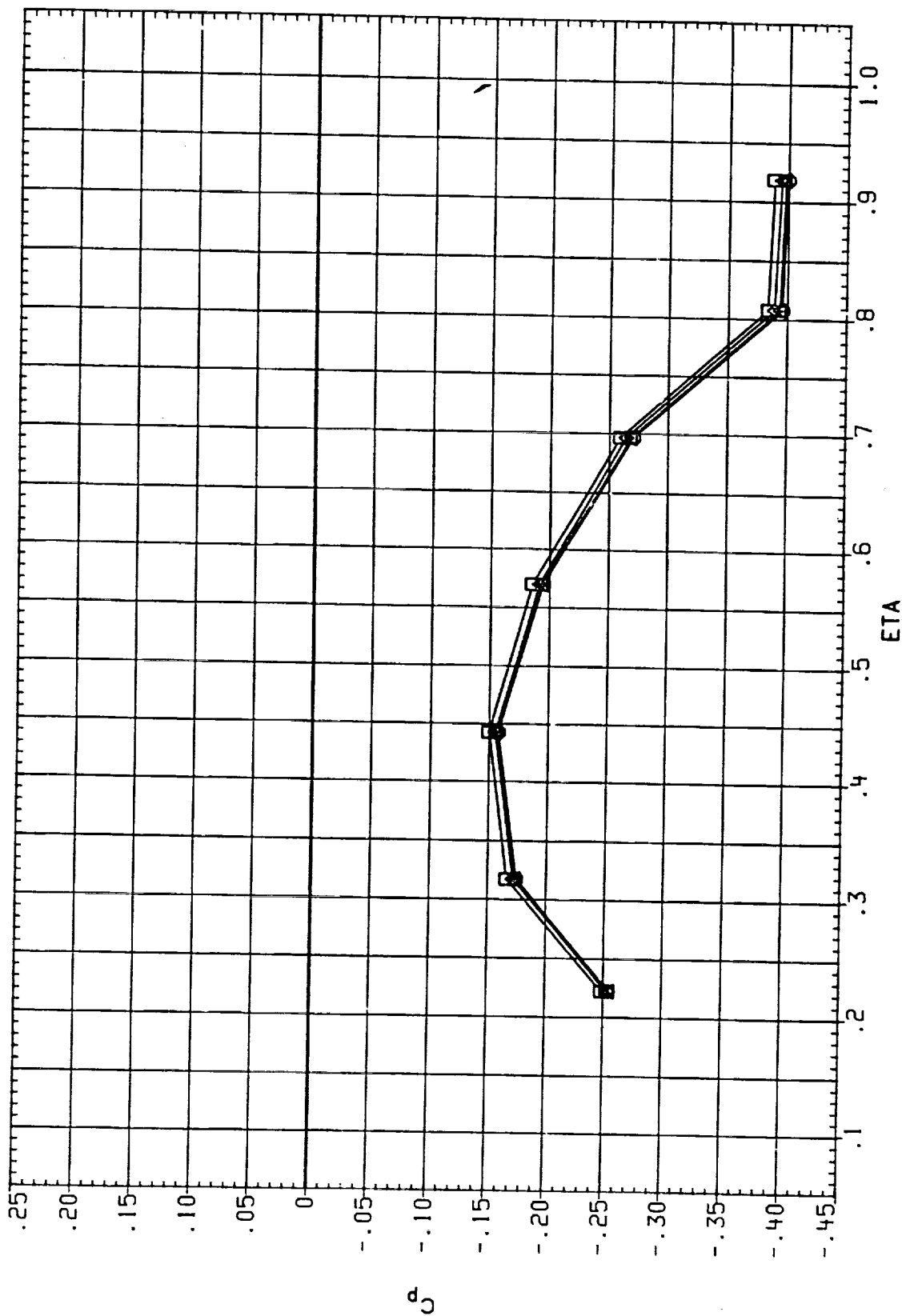


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL  
BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	VERT. TAIL (LS)	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH6)	○	IA613A.B/L OT+PSRM+PLUMES SI.2	-VERT. TAIL (LS)	1.300	.000	10.000	9.000
(RCOVH1)	□	IA613A.B/L OT+ASRM+PLUMES SI.3	-VERT. TAIL (LS)	1.300	.000	10.000	5.000
(RCOVH9)	◇	IA613A.B/L OT+ASRM+PLUMES SI.3	-VERT. TAIL (LS)	1.300	180.000	10.000	5.000
(RCOVCT7)	△	IA613A.B/L OT+ASRM+PLUMES SI.3	-VERT. TAIL (LS)	1.300	999.000	10.000	5.000

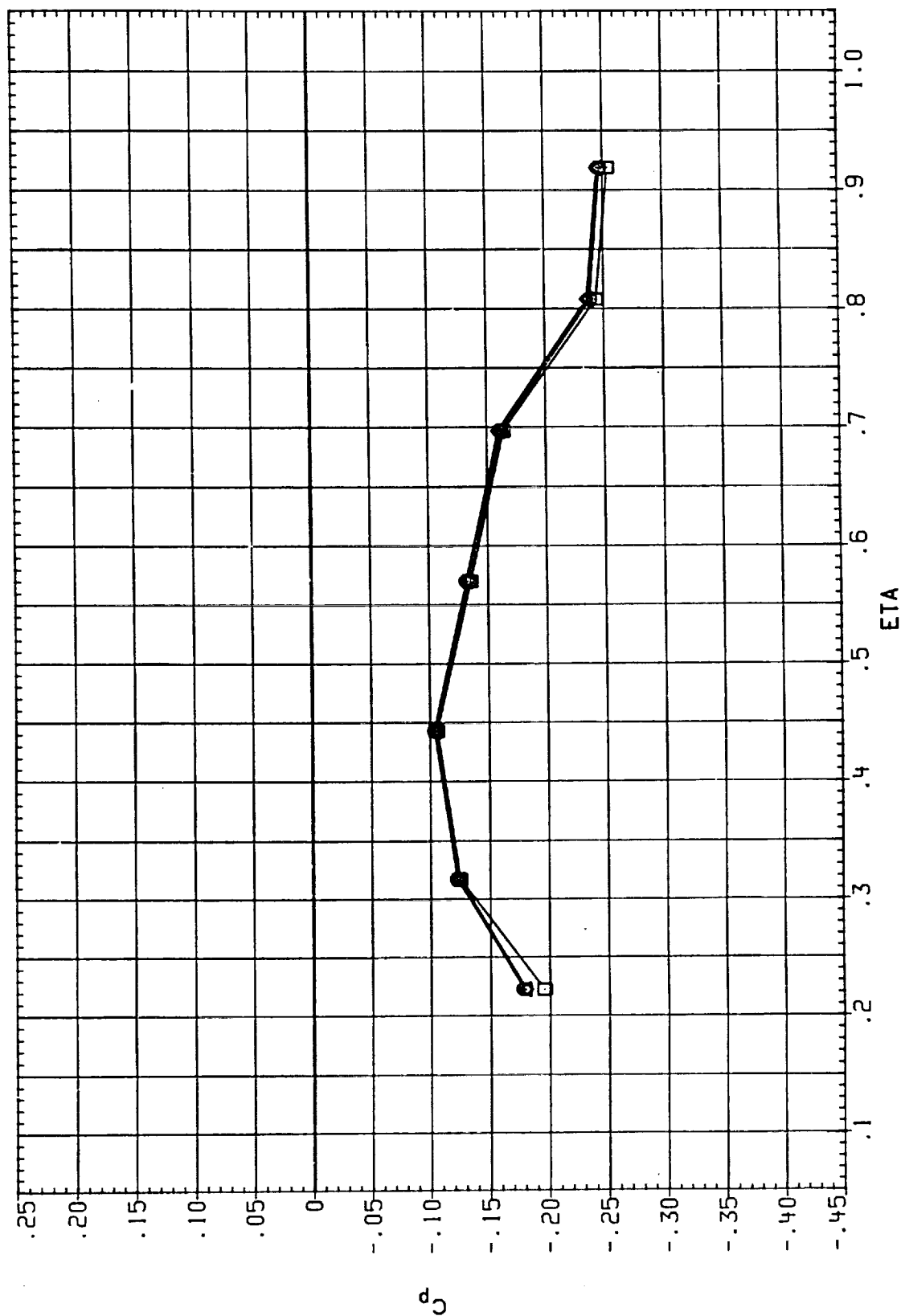


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL  
BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH7)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	1.350	.000	10.000	9.000
(RCOV55)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RCOV90)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOV68)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

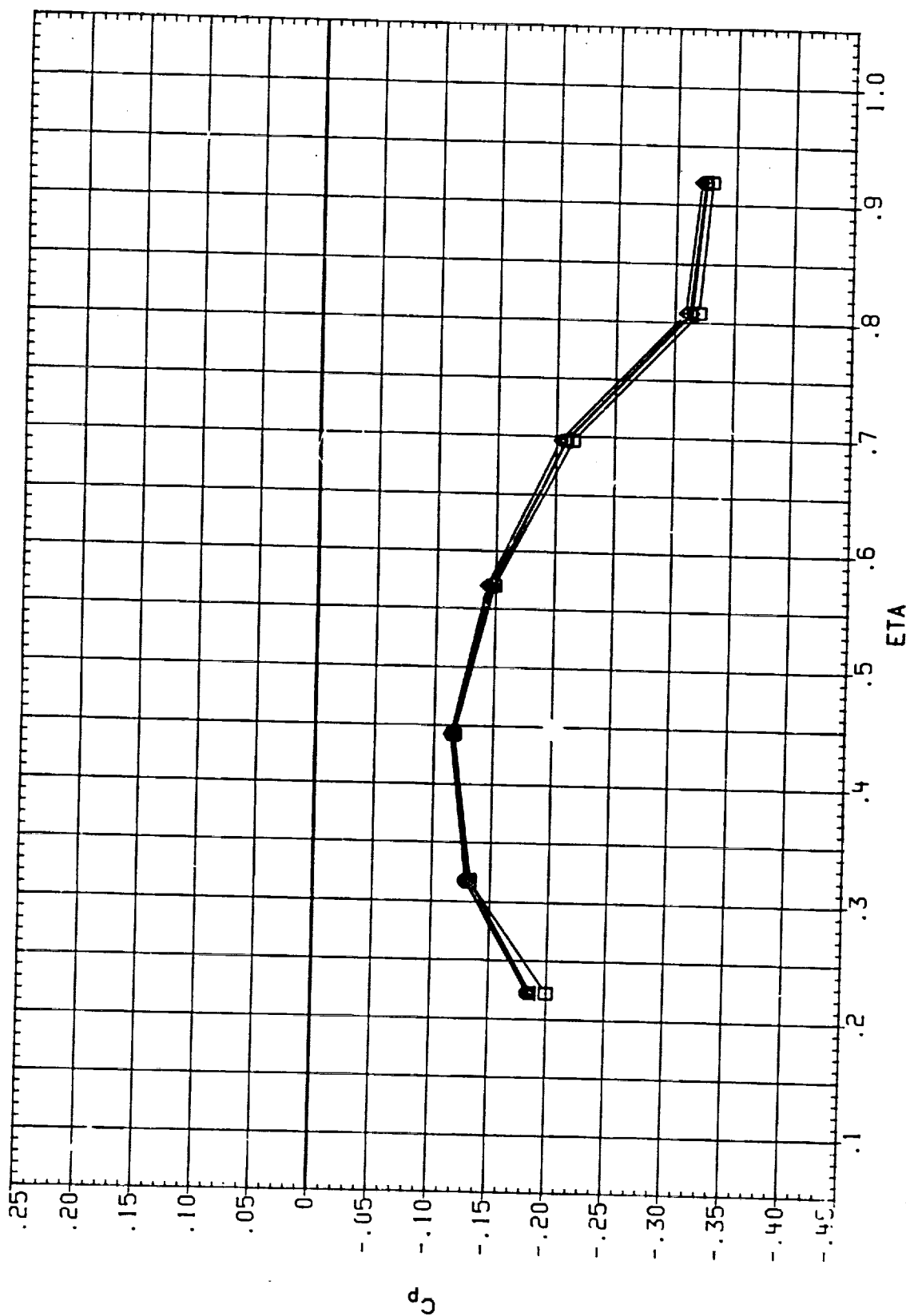


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 XV/CV = 1.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH8)	□	IA613A.B/L OT+RSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOV56)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOV91)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOV99)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

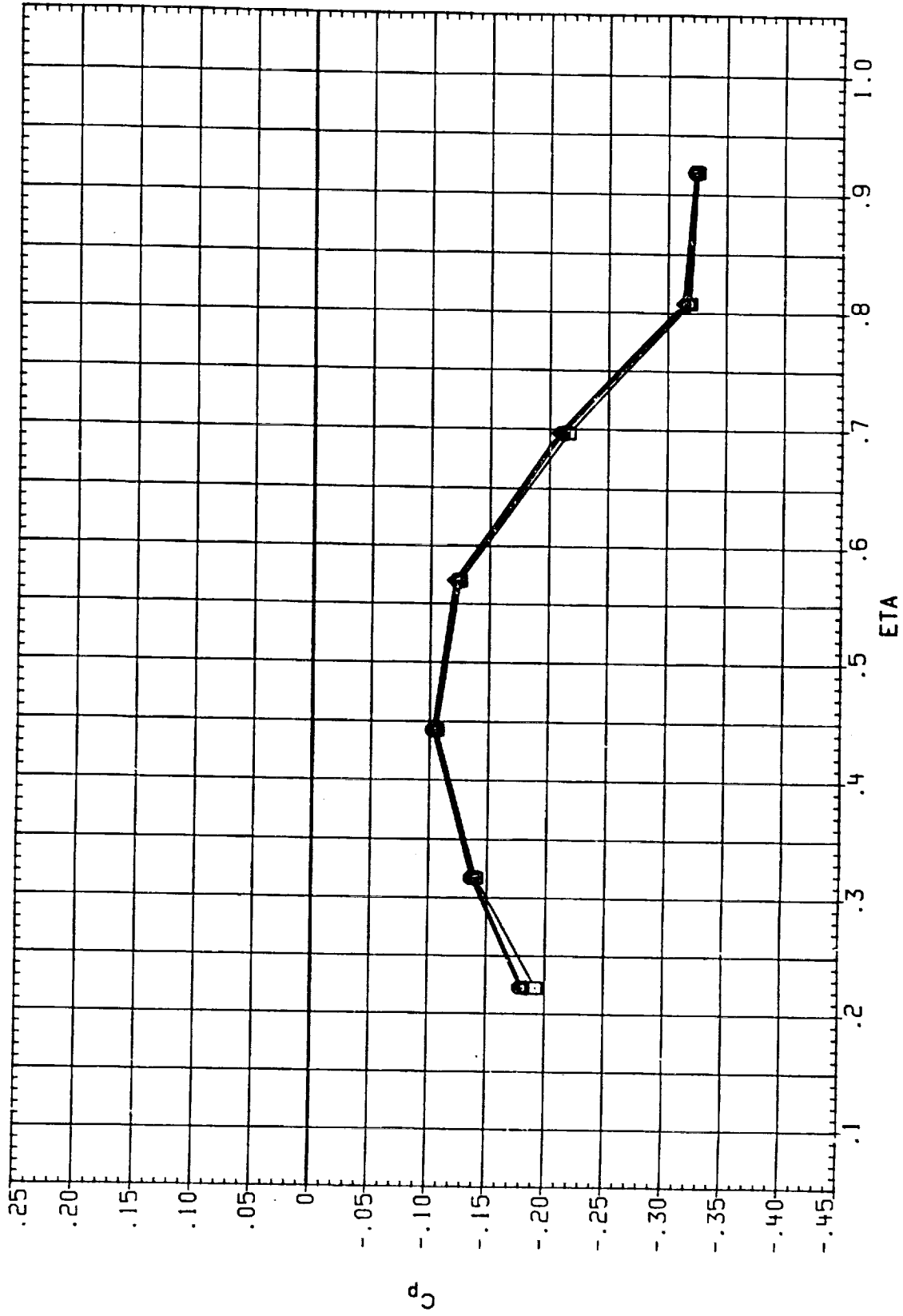


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ORBITER VERTICAL TAIL ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOVH9)	□	IA613A, B/L OT+RSRH+PLUMES SI.2 -VERT. TAIL (LS)	1.550	.000	10.000	9.000
(RCOV57)	□	IA613A, B/L OT+ASRH+PLUMES SI.3 -VERT. TAIL (LS)	1.550	.000	10.000	5.000
(RCOV92)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3 -VERT. TAIL (LS)	1.550	180.000	10.000	5.000
(RCOV00)	△	IA613A, B/L OT+ASRH+PLUMES SI.3 -VERT. TAIL (LS)	1.550	999.000	10.000	5.000

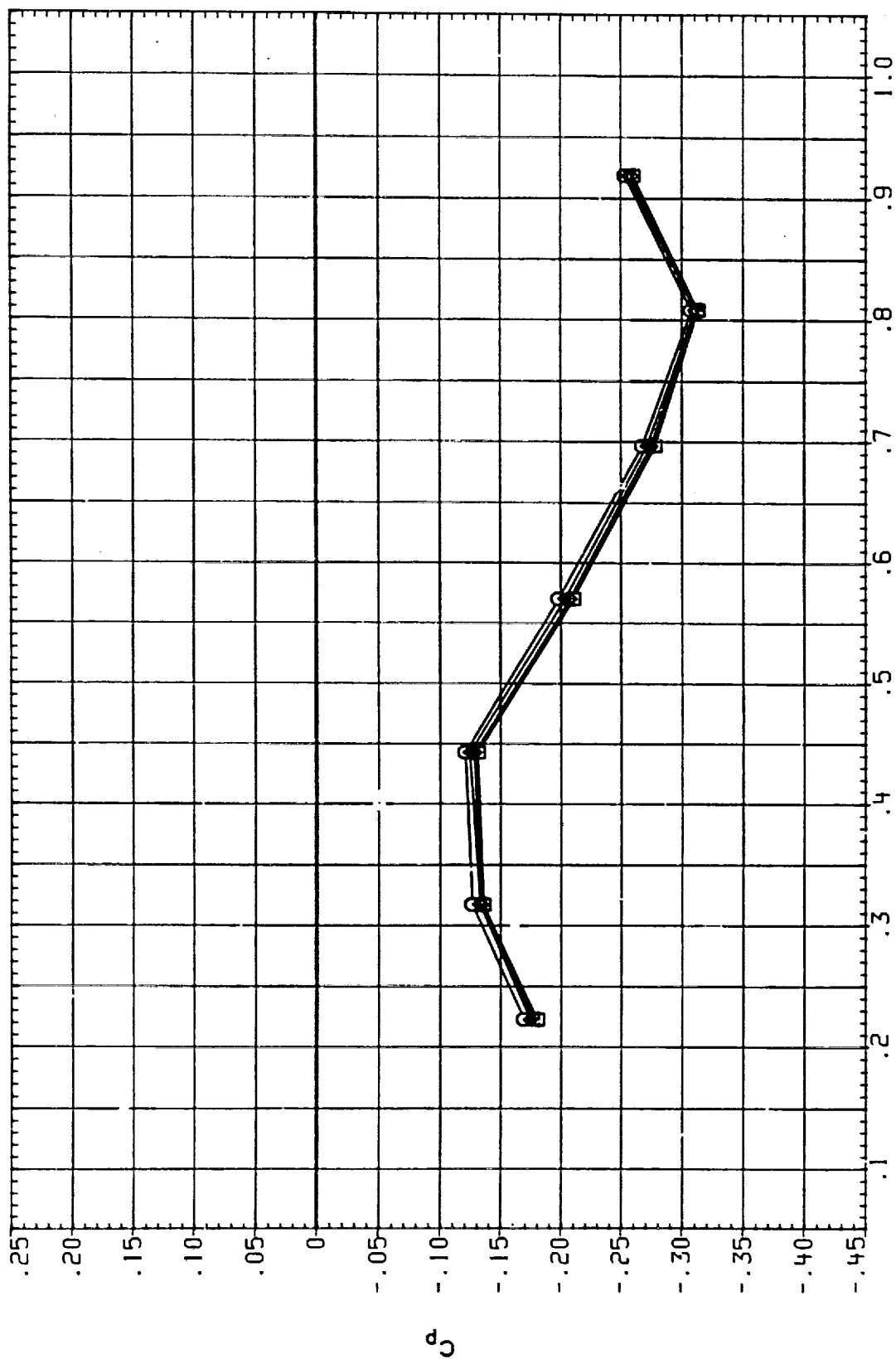


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 XV/CV = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOV15)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOV42)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOV80)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOVCI)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

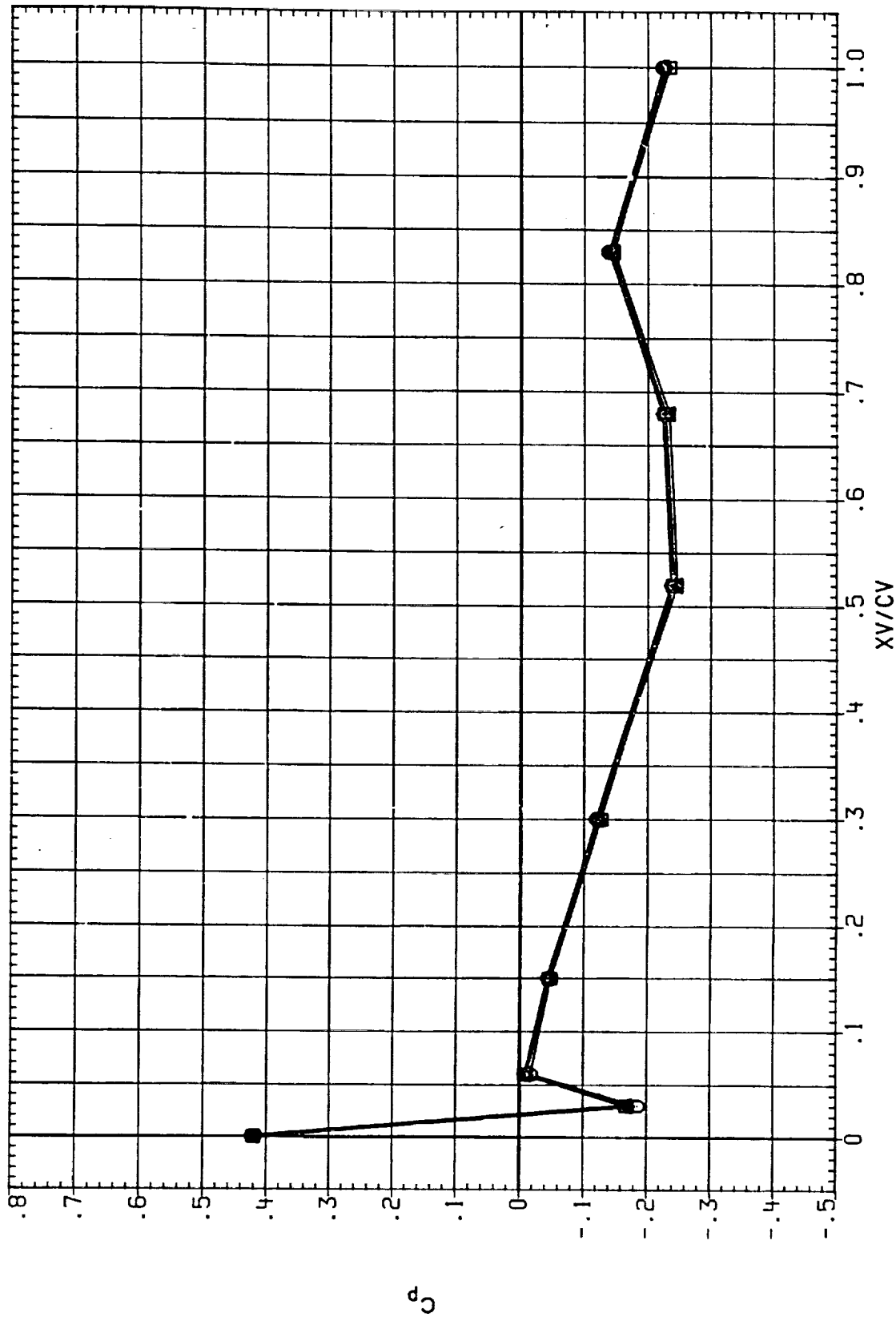


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .222    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV16)	○	IA613A, B/L OT+RSRM+PLUMES SI,2	.800	.000	10.000	9.000
(RCOV43)	□	IA613A, B/L OT+ASRM+PLUMES SI,2	.800	.000	10.000	9.000
(RCOV81)	◇	IA613A, B/L OT+ASRM+PLUMES SI,2	.800	180.000	10.000	9.000

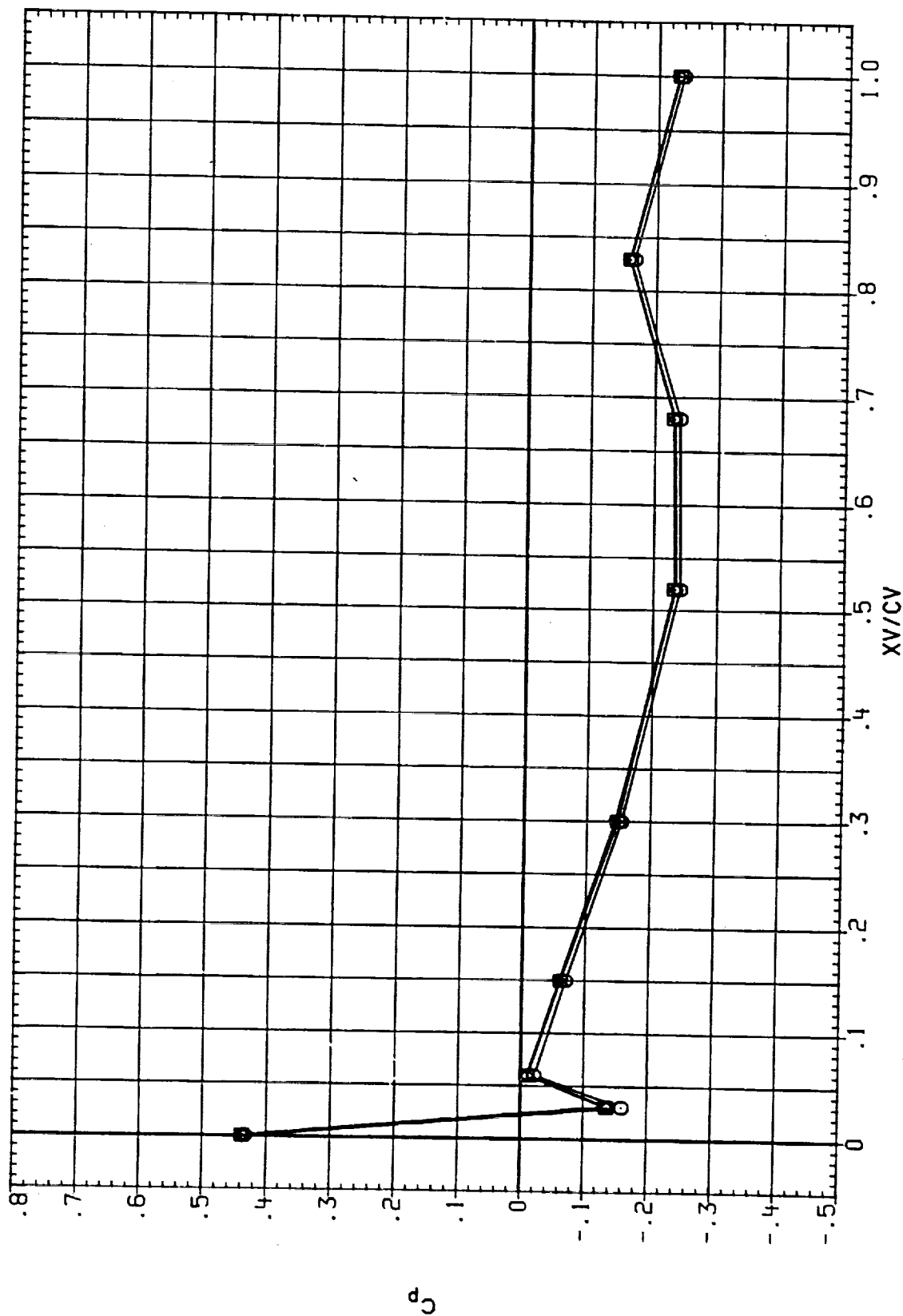


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL  
BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV17)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOV44)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOV82)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOV62)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

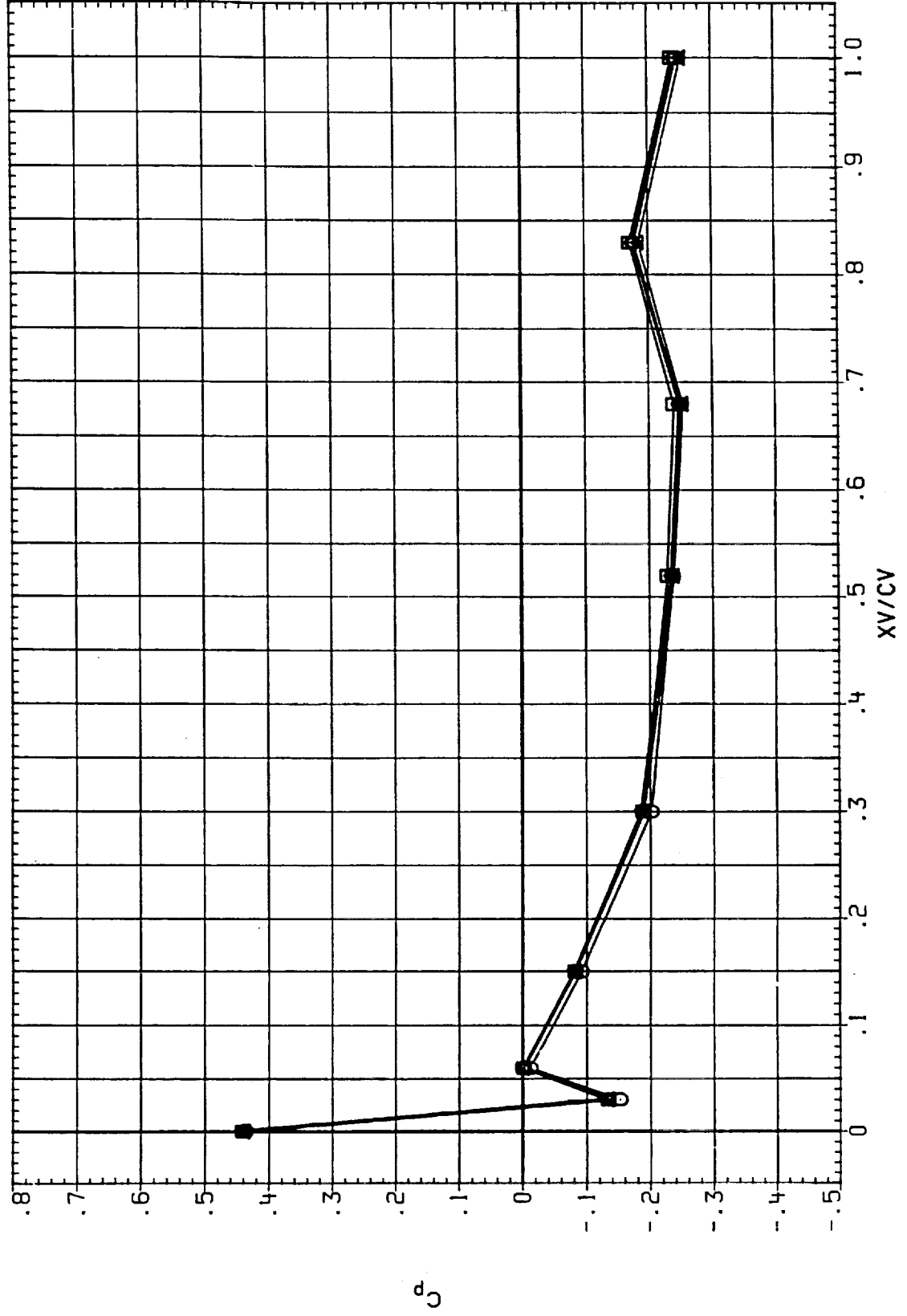


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1E/BOX	1B-ELV	OB-ELV
(RCOV18)	○	1A613A, B/L 01+RSRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOV45)	□	1A613A, B/L 01+ASRM+PLUMES S1.2	.950	.000	10.000	9.000
(RCOV83)	◇	1A613A, B/L 01+ASRM+PLUMES S1.2	.950	180.000	10.000	9.000

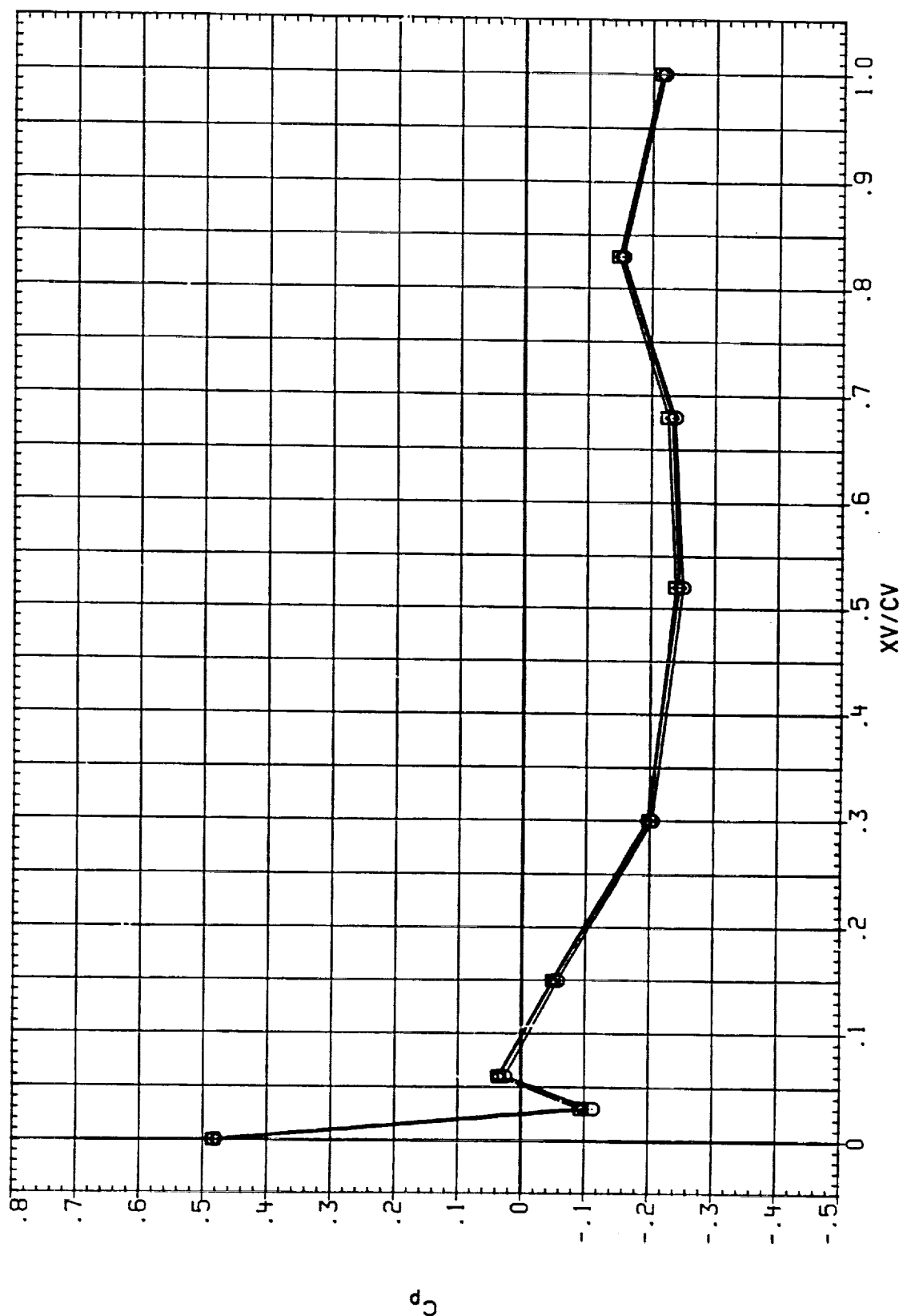


FIGURE 5 1A613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV19)	Q	IA613A, B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOV46)	Q	IA613A, B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOV84)	Q	IA613A, B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

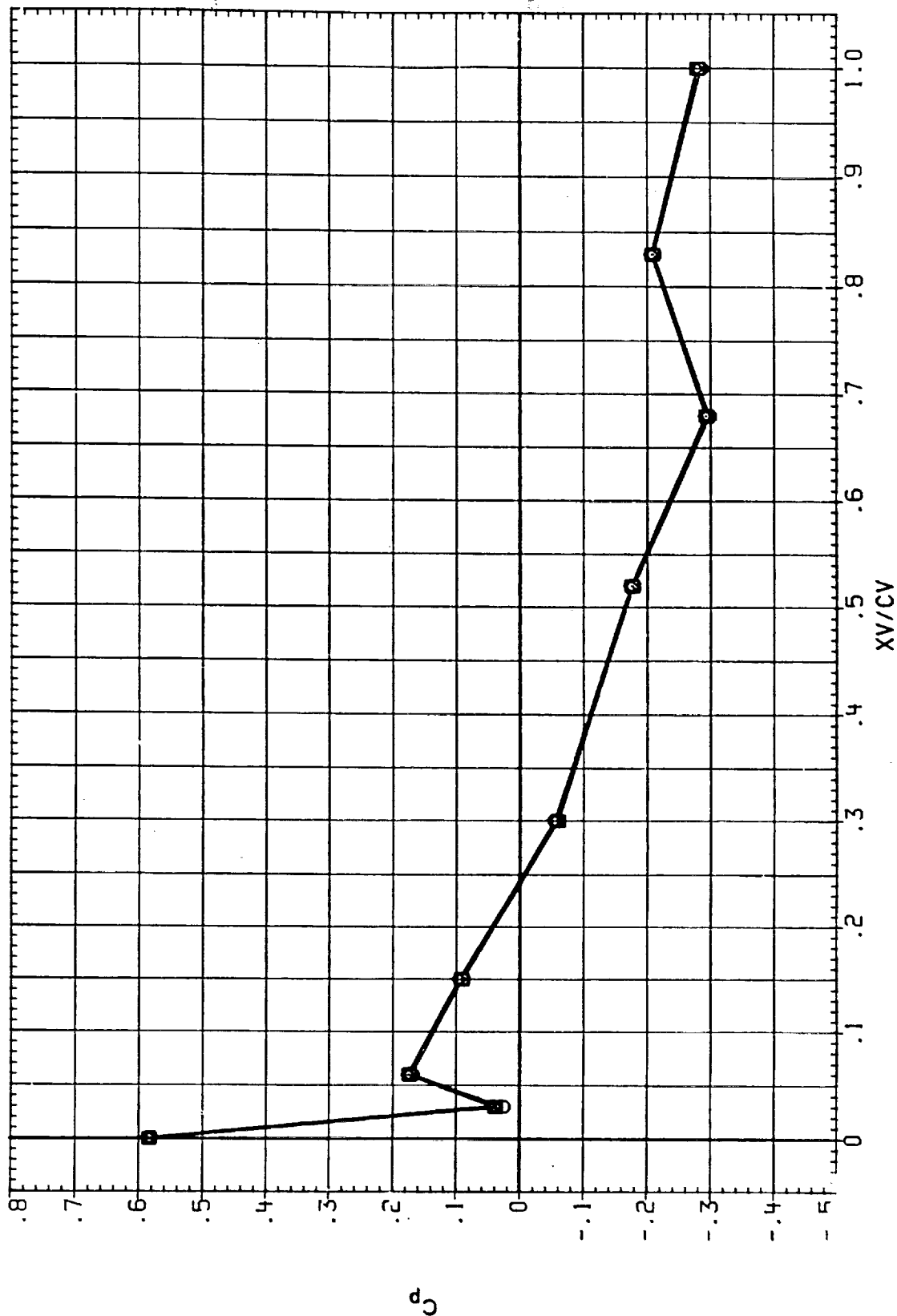


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV20)	○	IA613A.B/L OT+PSRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOV47)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOV85)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	1.100	180.000	10.000	9.000
(RCOV83)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	1.100	999.000	10.000	5.000

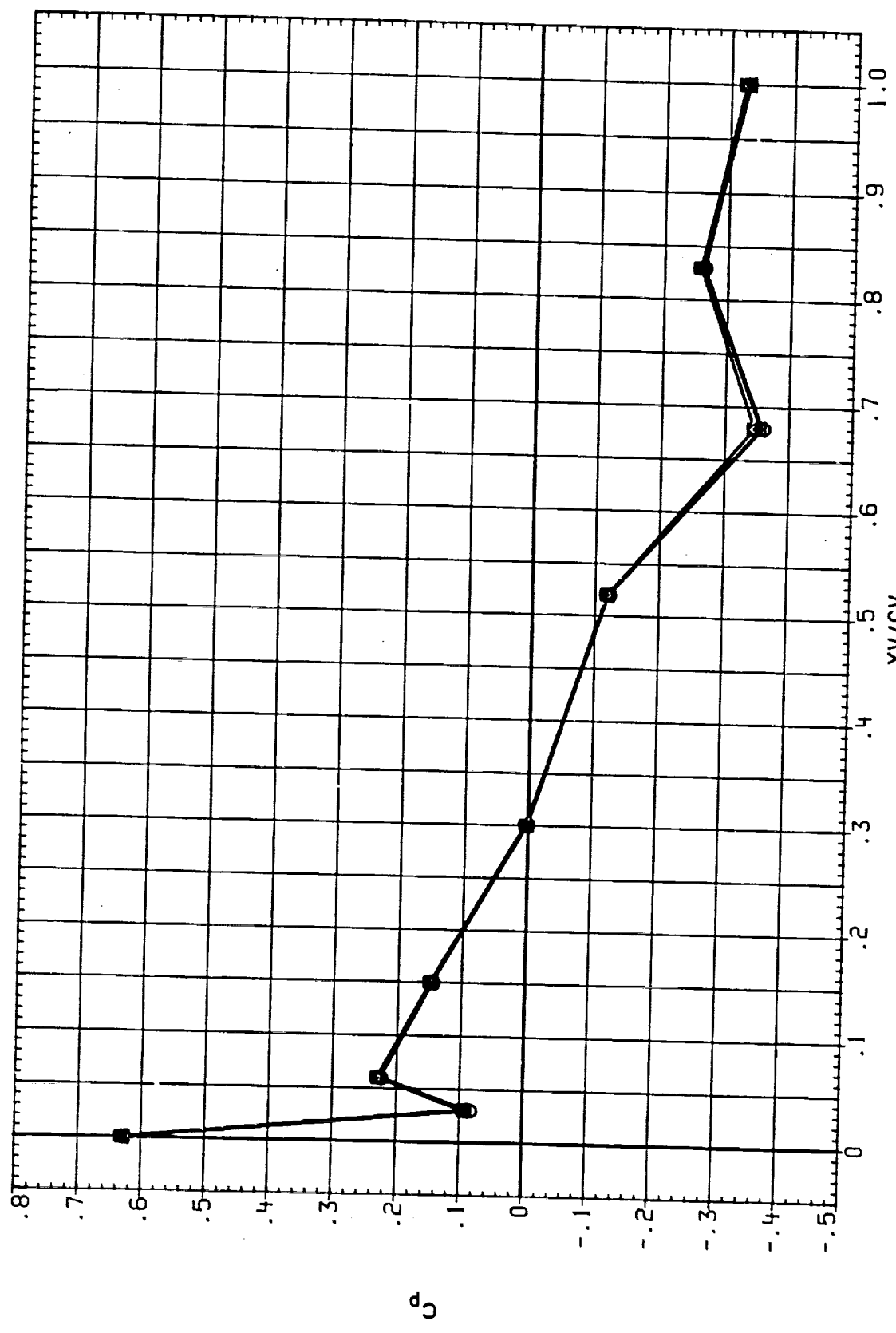


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 ETA = .222 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV211)	○	IA613A, B/L OT+RSPH+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOV48)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOV86)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOVC4)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.150	999.000	10.000	5.000

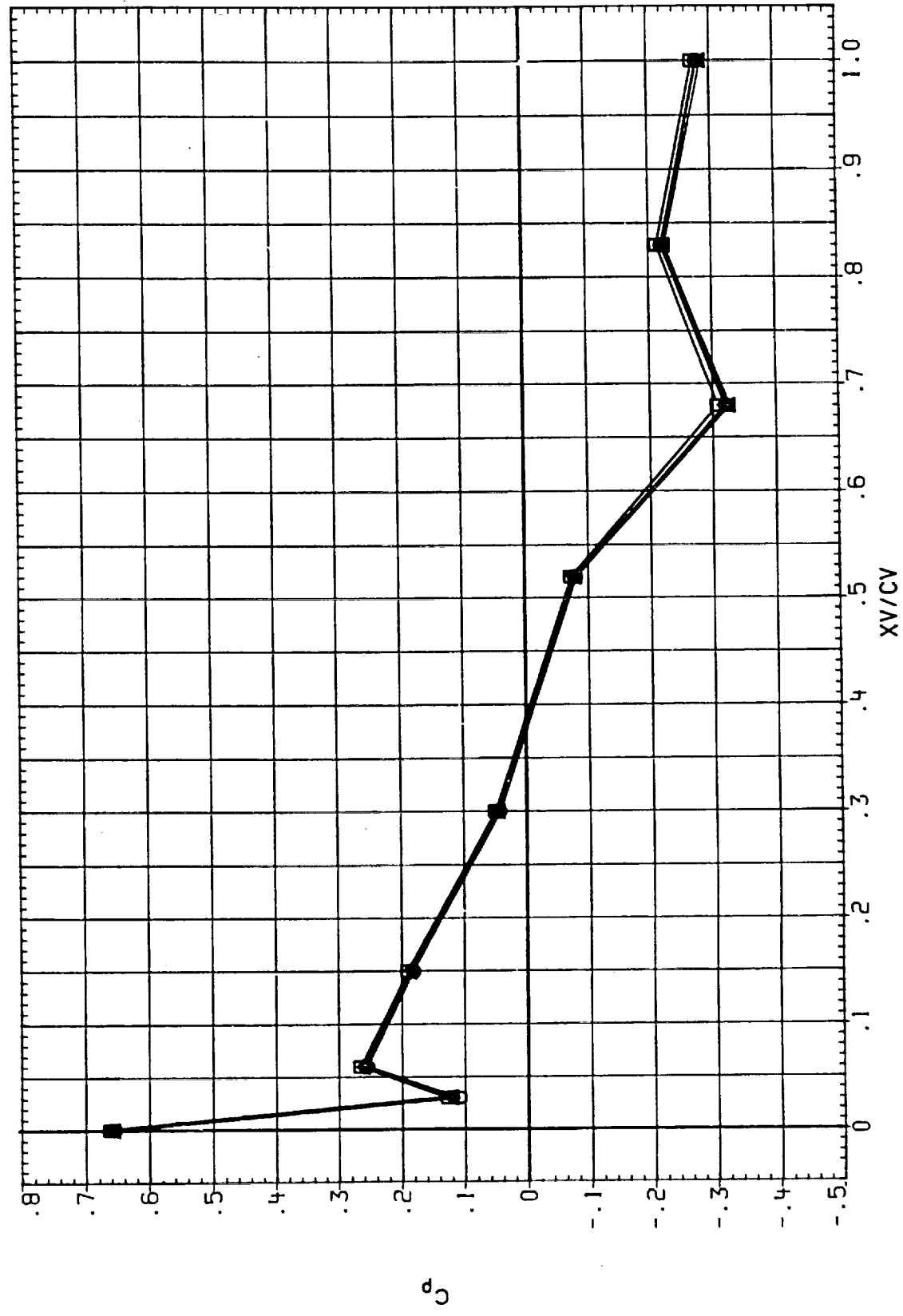


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .222    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOV22)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOV49)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOV87)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	180.000	10.000	9.000
(RCOV5)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	999.000	10.000	5.000

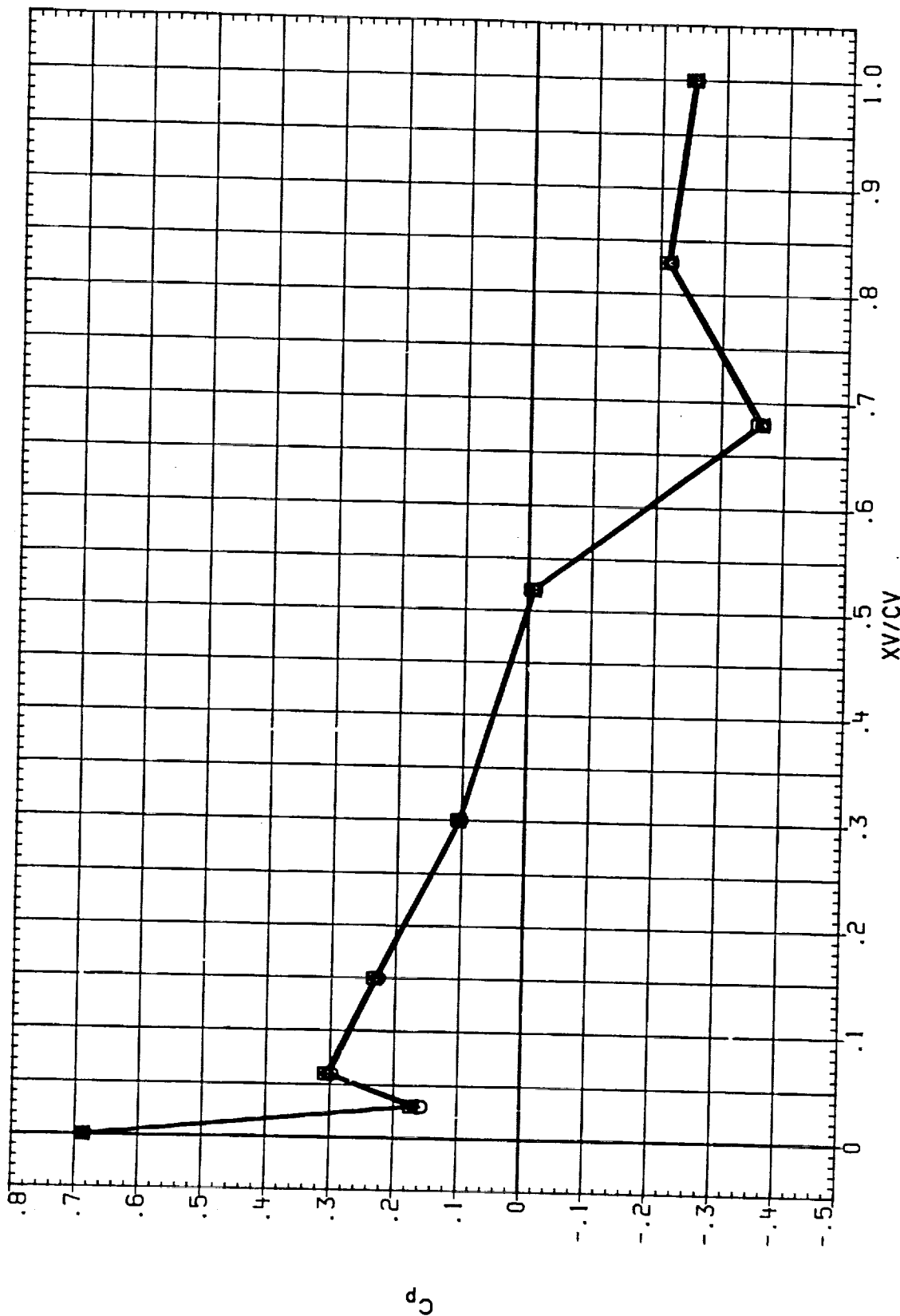


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL  
BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH6)	○	IA613A,B/L OT+RSRM+PLUMES S1.2	1.300	.000	10.000	9.000
(RCOV54)	□	IA613A,B/L OT+ASRM+PLUMES S1.3	1.300	.000	10.000	5.000
(RCOV89)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOV67)	△	IA613A,B/L OT+ASRM+PLUMES S1.3	1.300	999.000	10.000	5.000

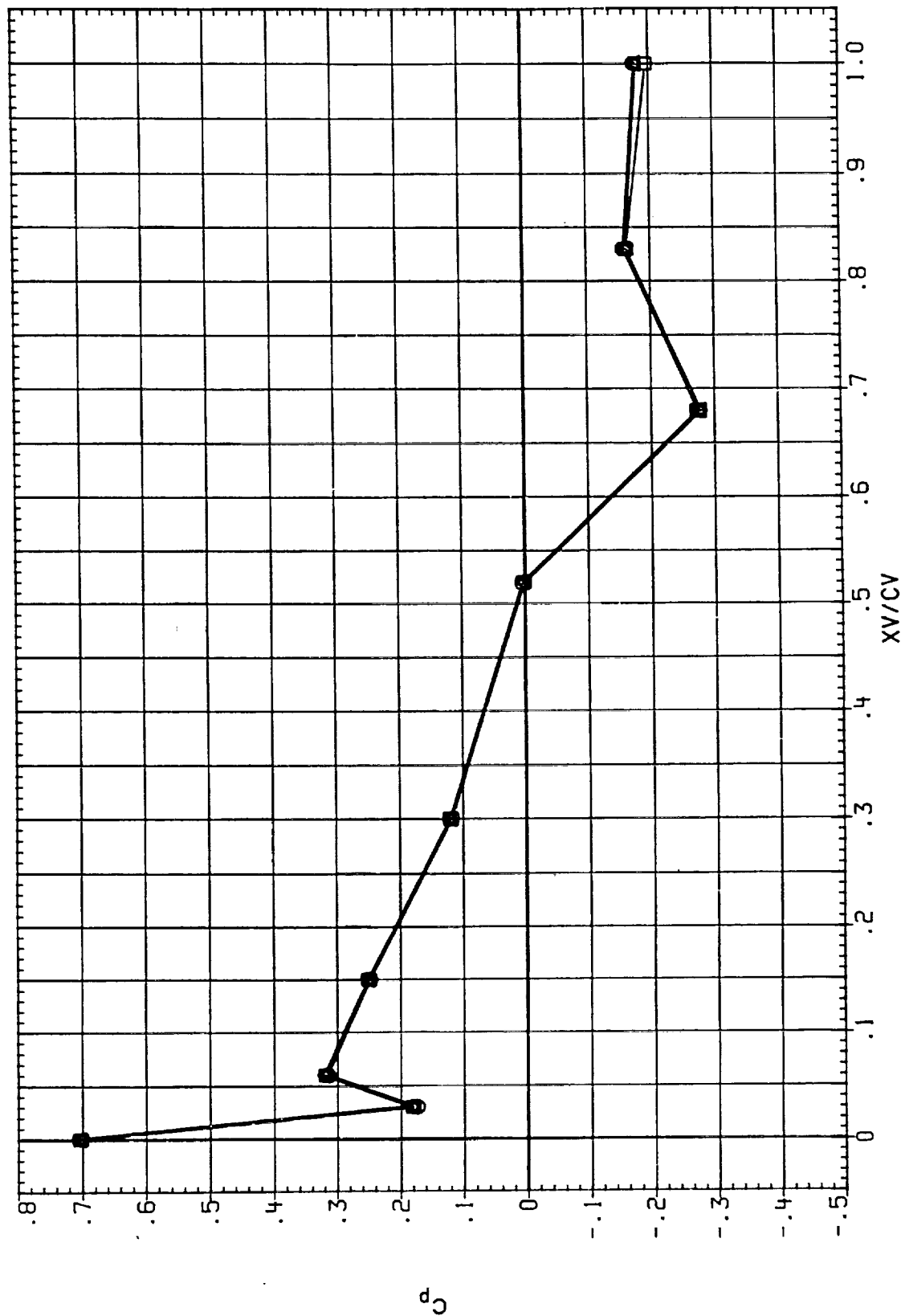


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .222    ALPHA = .000

DATA SET SYMBOL

(RCOVH7)  
(RCOV55)  
(RCOV50)  
(RCOV58)

CONFIGURATION DESCRIPTION

IA613A.B/L OT\*PSRM\*PLUMES SI.2  
IA613A.B/L OT\*ASRM\*PLUMES SI.3  
IA613A.B/L OT\*ASRM\*PLUMES SI.3  
IA613A.B/L OT\*ASRM\*PLUMES SI.3

-VERT. TAIL (LS)  
-VERT. TAIL (LS)  
-VERT. TAIL (LS)  
-VERT. TAIL (LS)

MACH IEABOX IB-ELV OB-ELV  
1.350 .000 10.000 9.000  
1.350 .000 10.000 5.000  
1.350 180.000 10.000 5.000  
1.350 999.000 10.000 5.000

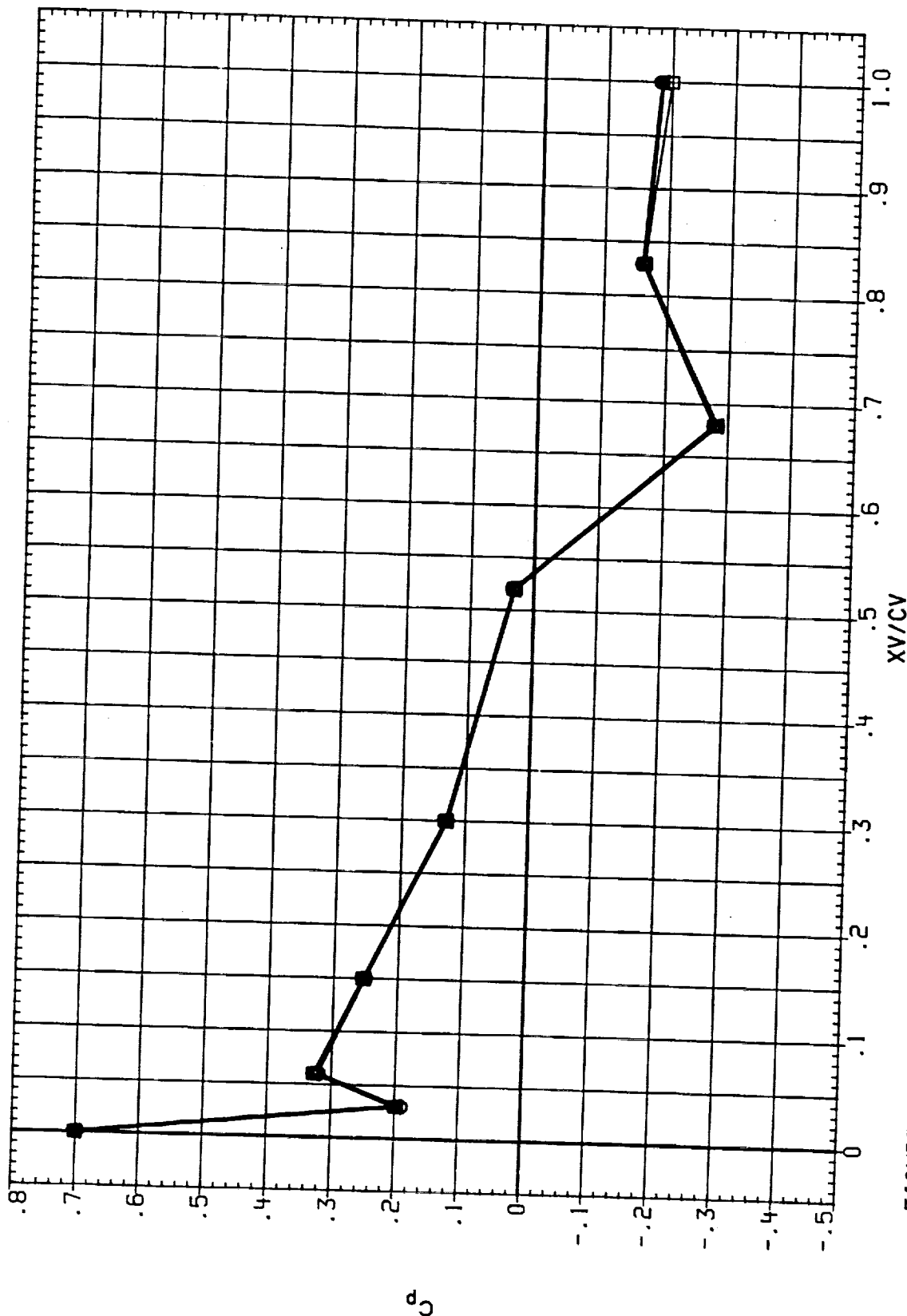


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
BETA = .000 ETA = .222 ALPHA = .000  
ORBITER VERTICAL TAIL

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOVH8)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOV56)	□	IA613A,B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOV91)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOV91)	△	IA613A,B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000

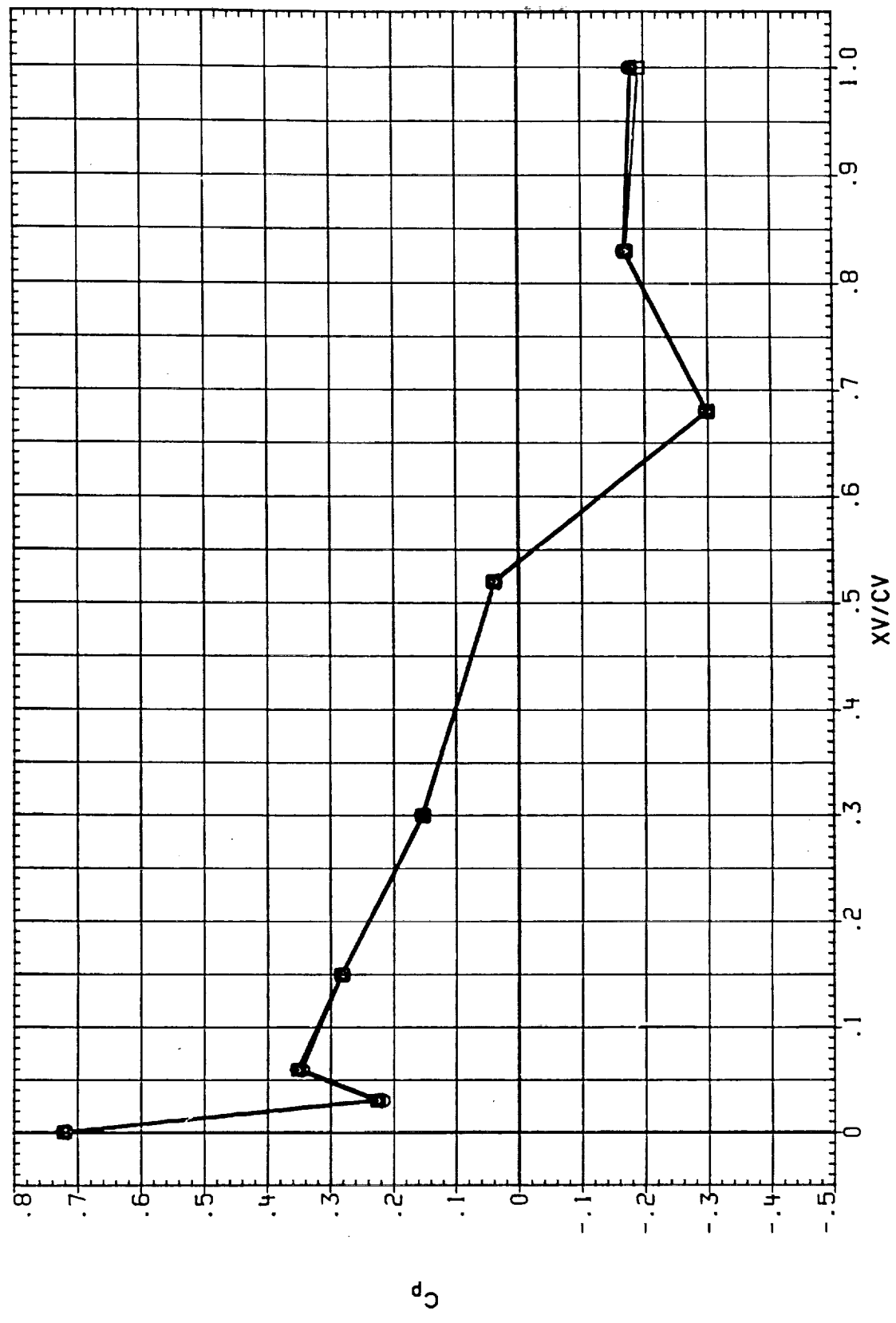


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER VERTICAL TAIL

BETA = .000    ETA = .222    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOVH9)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	1.550	.000	10.000	9.000
(RCOV57)	□	IA613A.B/L C.+ASRM+PLUMES SI.3	1.550	.000	10.000	5.000
(RCOV92)	◇	IA613A.B/L OT+ASRM+PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOV00)	△	IA613A.B/L OT+ASRM+PLUMES SI.3	1.550	999.000	10.000	5.000

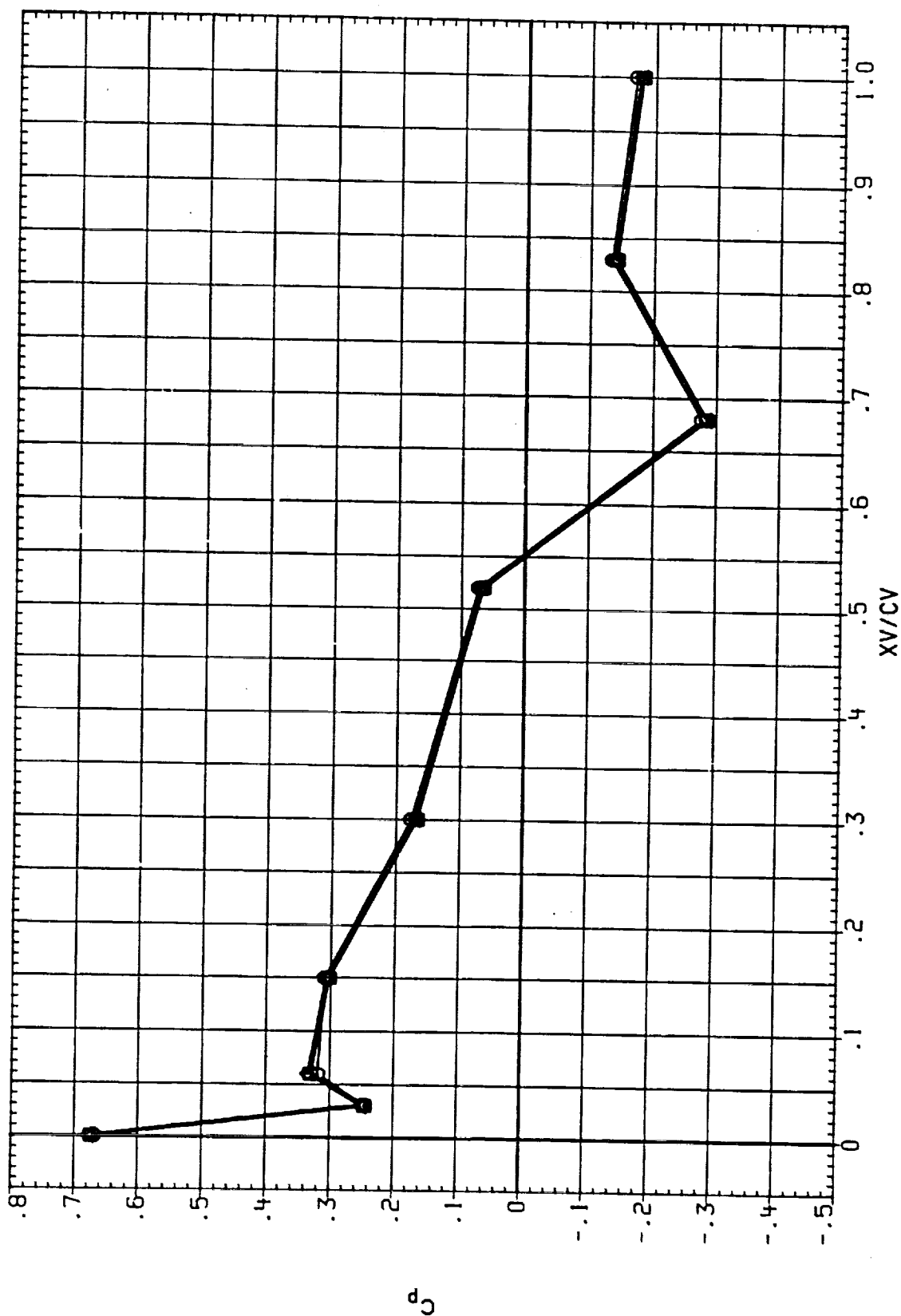


FIGURE 5 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER VERTICAL TAIL  
 BETA = .000 ETA = .222 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RCOL151)	□	IA613A,B/L OT+RSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL42)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLCT1)		IA613A,B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

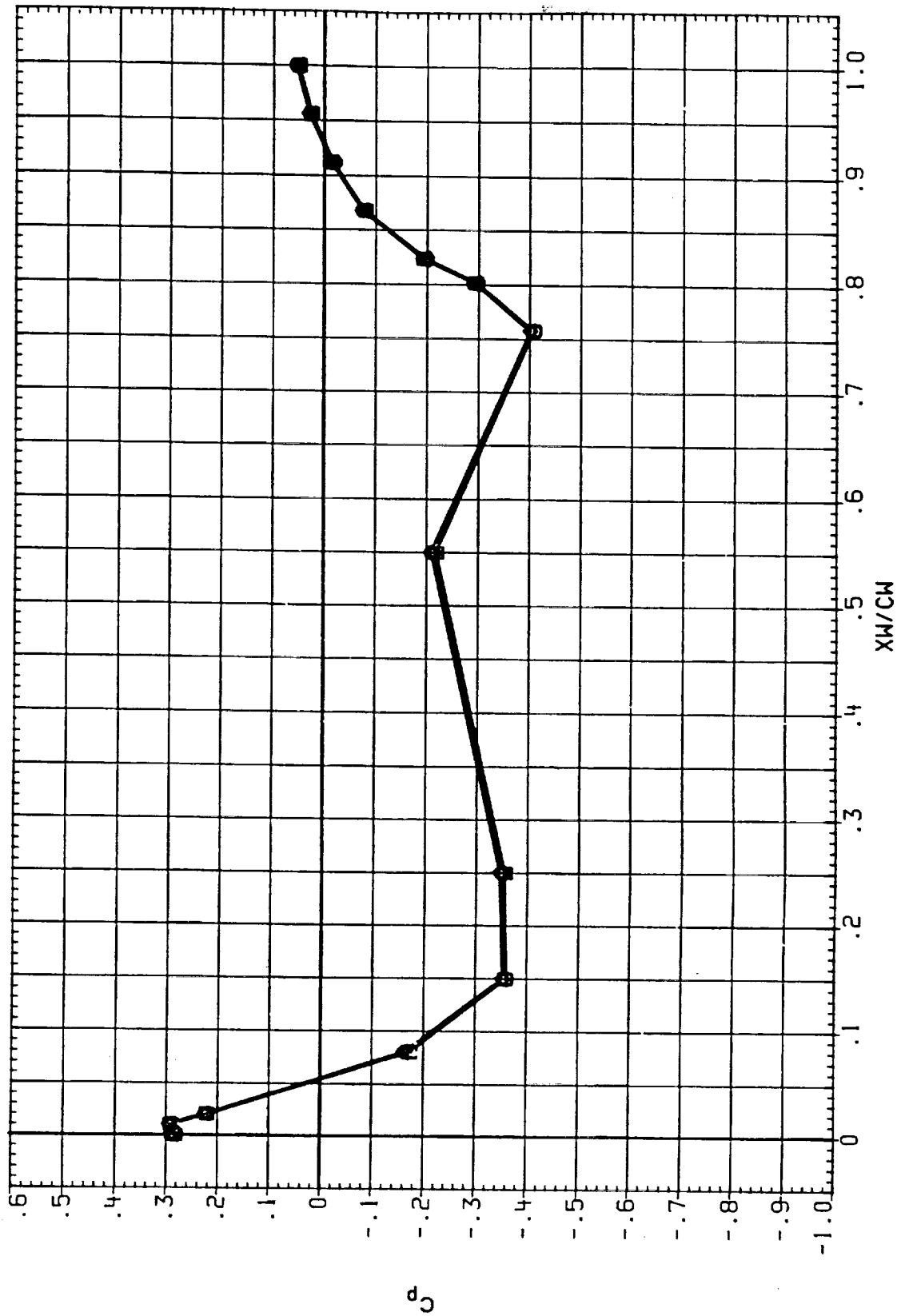


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - UPPER SURFACE  
BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU15)	○	IA613A.B/L OT+RSRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOU42)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOU80)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.600	180.000	10.000	9.000
(RCOU81)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	.600	999.000	10.000	5.000

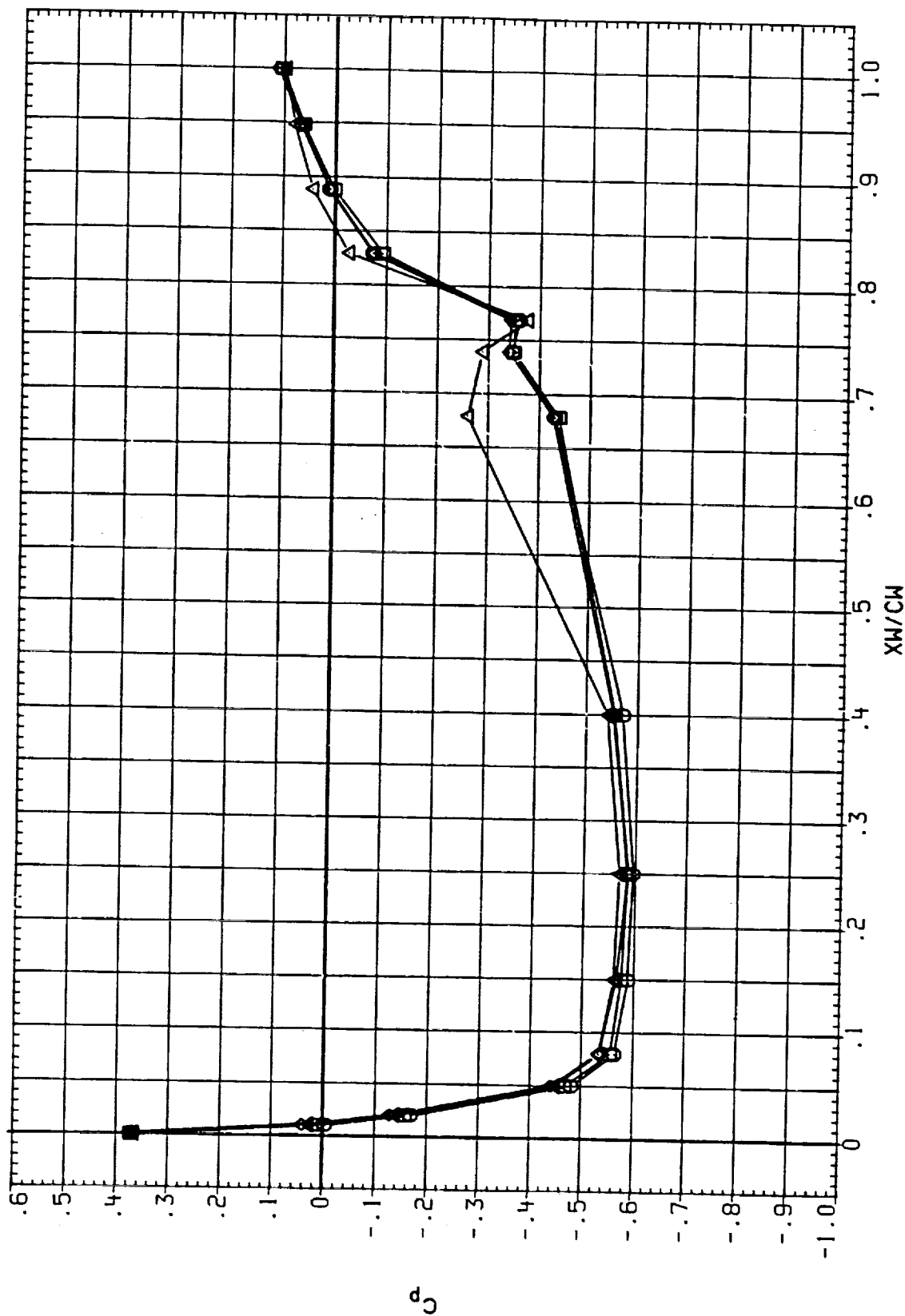


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0016)	○	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0043)	○	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	.000	10.000	9.000
(RC0081)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.800	180.000	10.000	9.000

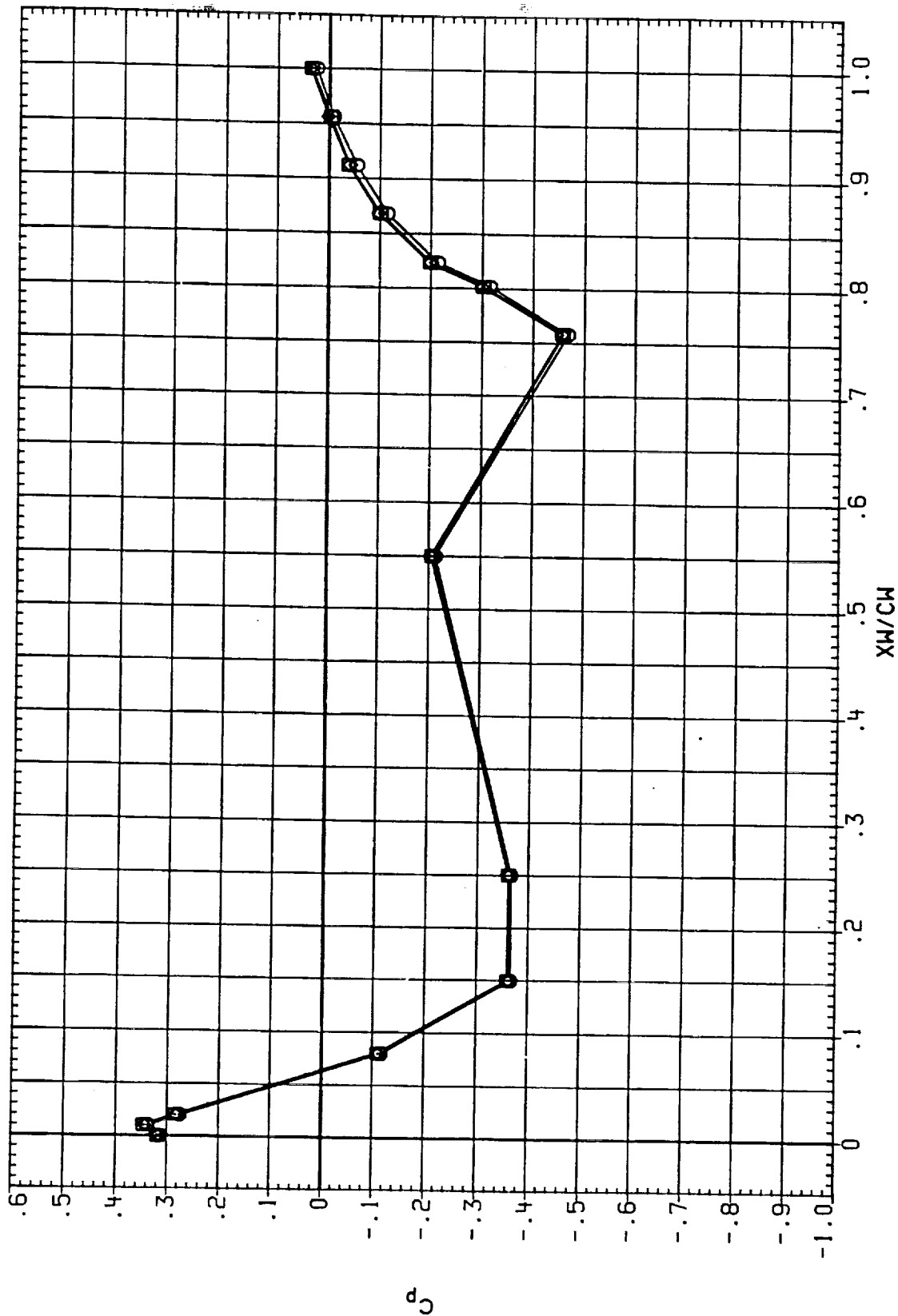


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU16)	○	IA613A.B/L OT+PSRM+PLUMES S1.2 -L.H. WING UPPER	.800	.000	10.000	9.000
(RCOU43)	□	IA613A.B/L OT+ASRM+PLUMES S1.2 -L.H. WING UPPER	.800	.000	10.000	9.000
(RCOU81)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2 -L.H. WING UPPER	.800	180.000	10.000	9.000

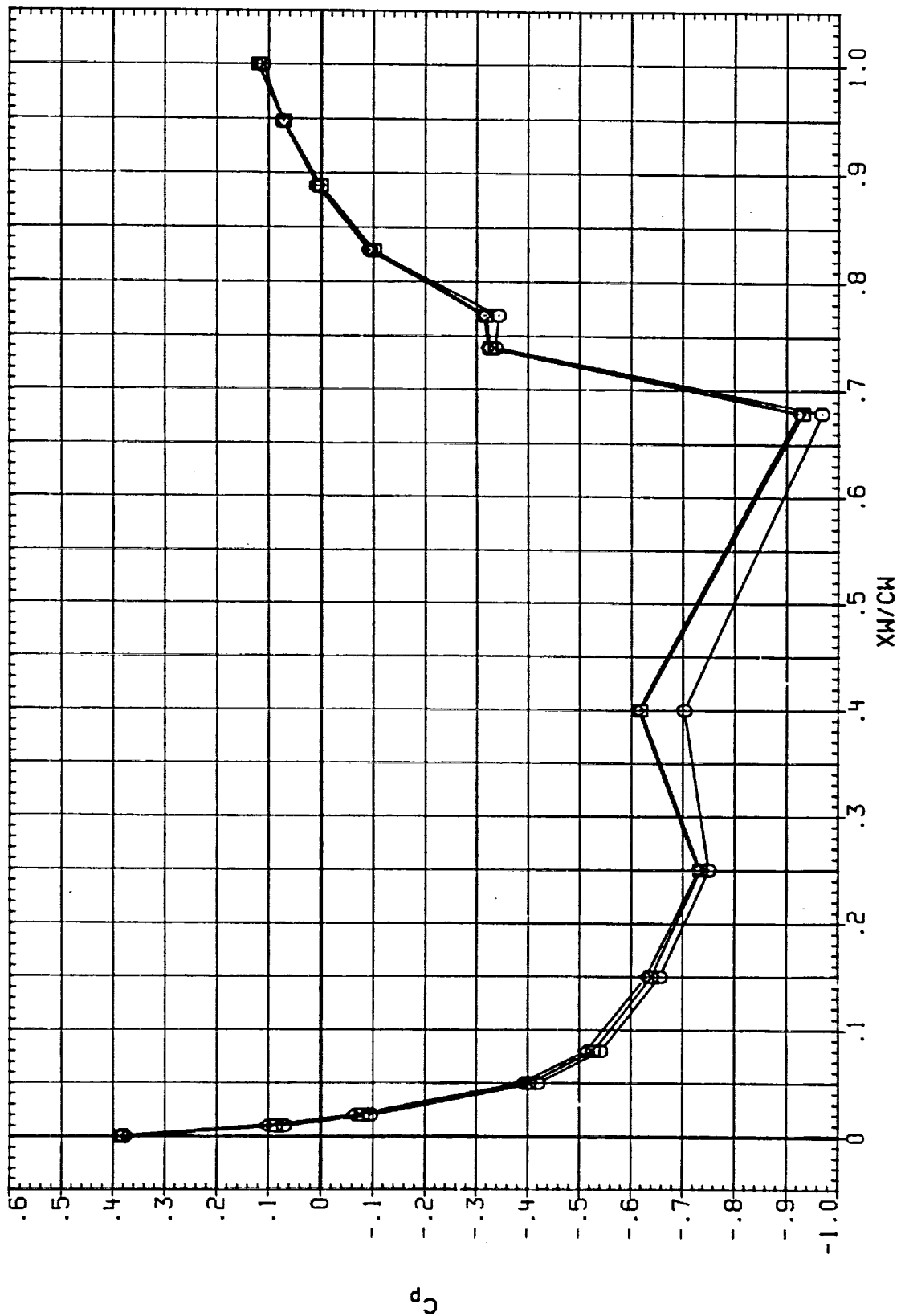


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU17)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOU44)	□	IA613A.B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RCOU82)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOU82)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

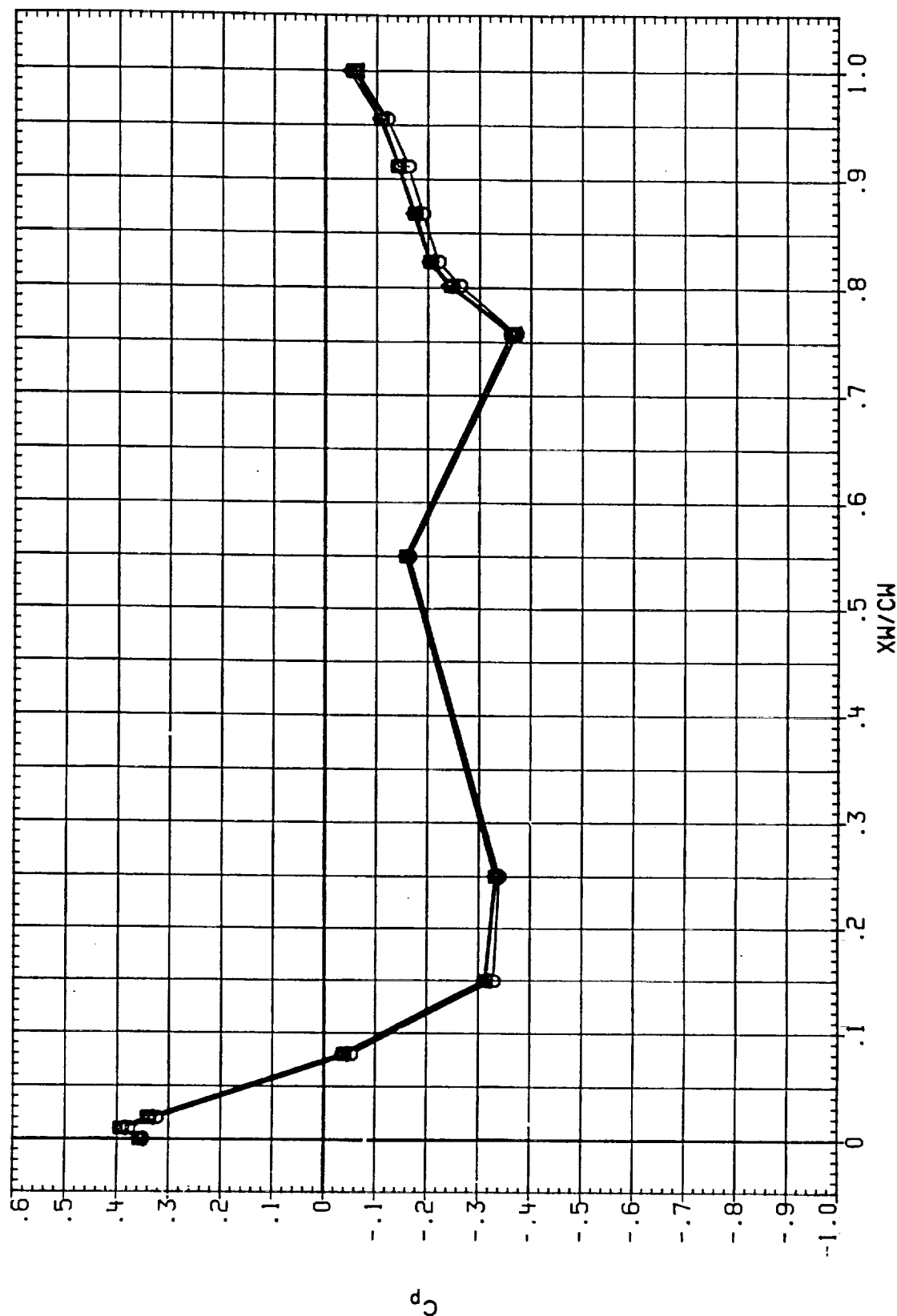


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .427    ALPHA = .000

DATA SET SYMBOL

(RCOU17)  
(RCOU44)  
(RCOU82)  
(RCOU82)

CONFIGURATION DESCRIPTION

IA613A.B/L OT\*SRM\*PLUMES SI.2  
IA613A.B/L OT\*SRM\*PLUMES SI.2  
IA613A.B/L OT\*SRM\*PLUMES SI.2  
IA613A.B/L OT\*SRM\*PLUMES SI.2

MACH  
.900  
.900  
.900  
180.000  
999.000

IEABOX

.000  
.000  
.000  
180.000  
999.000

IB-ELV

10.000  
10.000  
10.000  
10.000  
10.000

OB-ELV

9.000  
9.000  
9.000  
9.000  
5.000

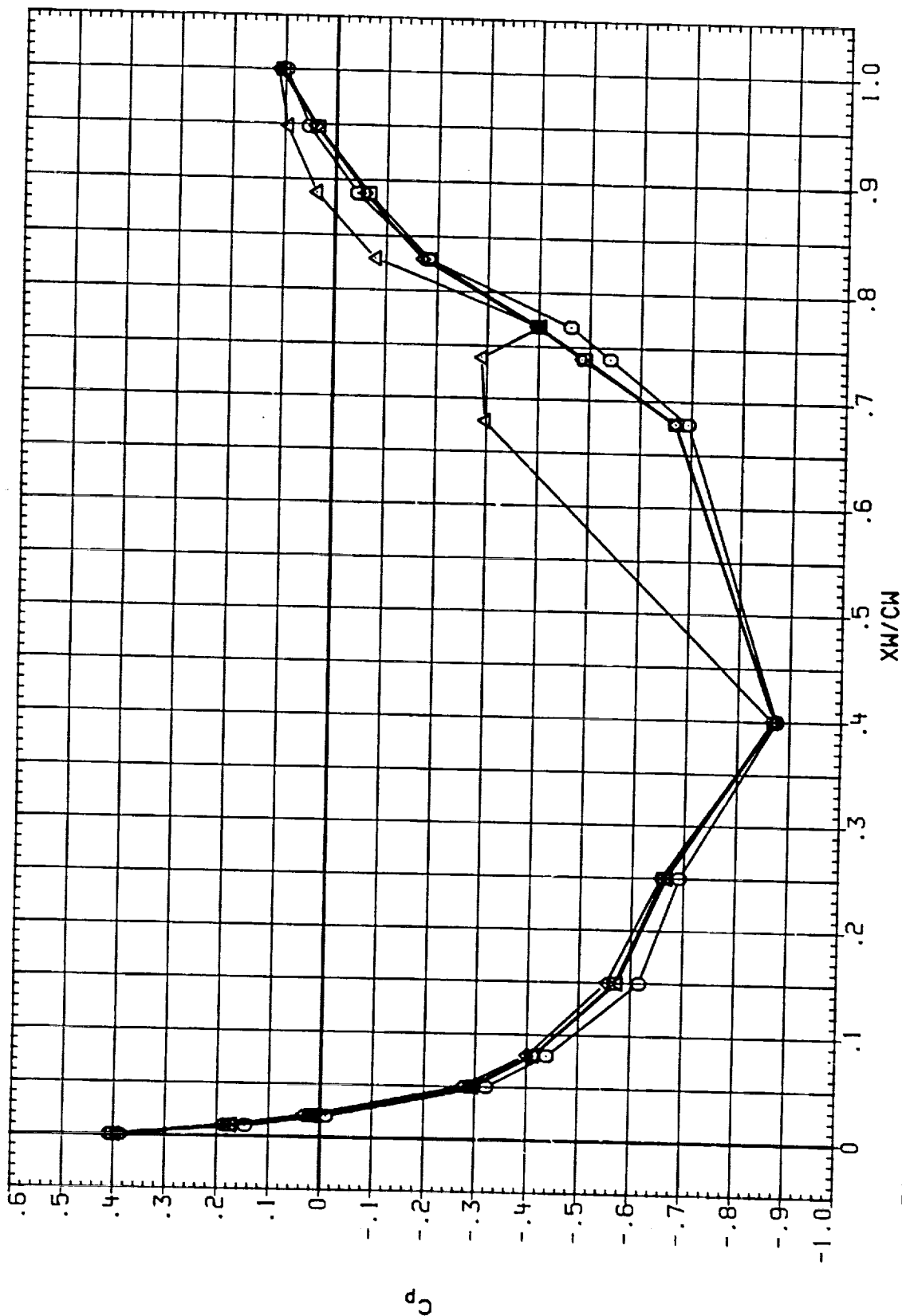


FIGURE 6 IAG613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU18)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOU45)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOU83)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.950	180.000	10.000	9.000

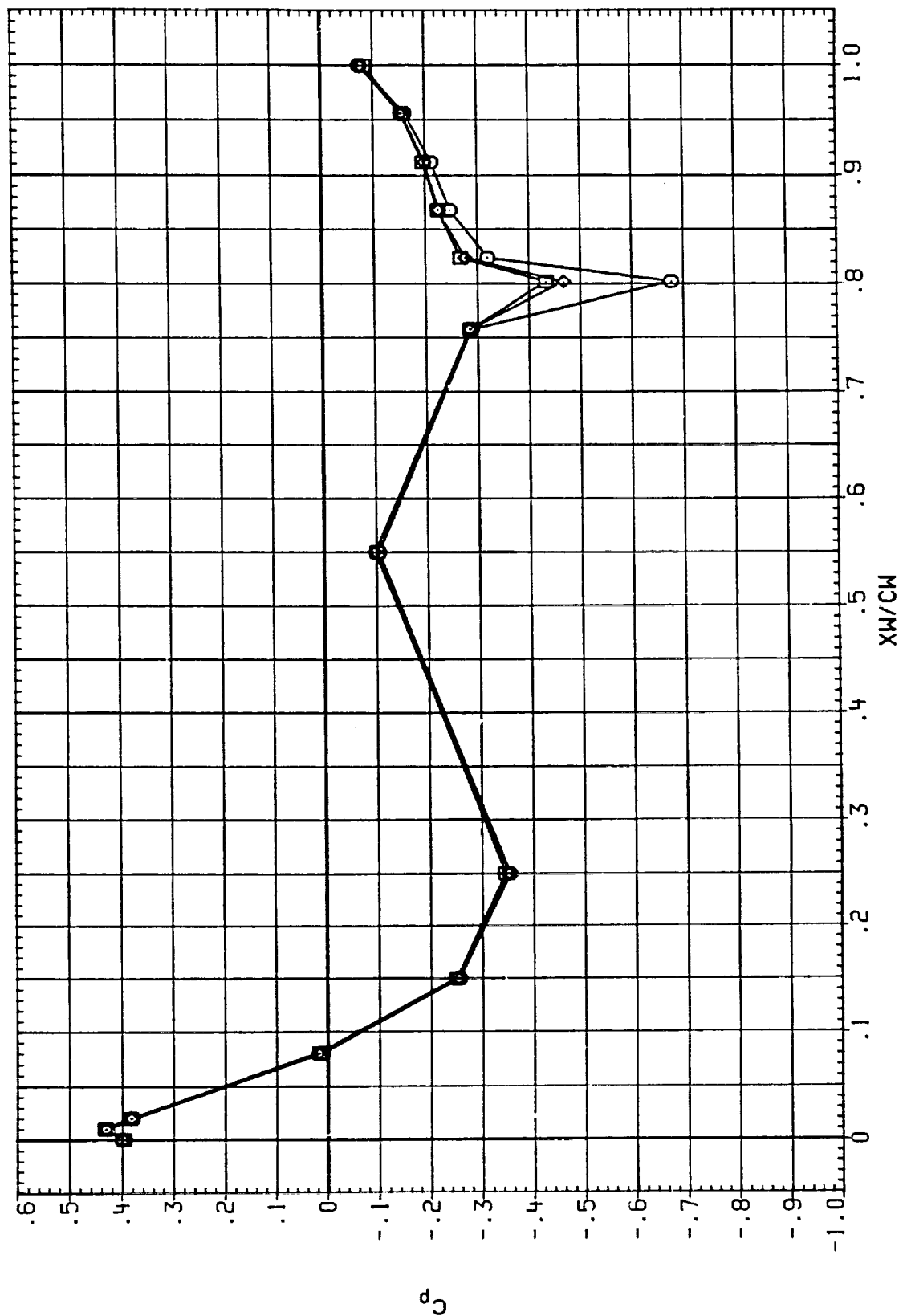


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU181)	○	IA613A.B/L OT*ASRH*PLUMES S1.2	.950	.000	10.000	9.000
(RCOU451)	□	IA613A.B/L OT*ASRH*PLUMES S1.2	.950	.000	10.000	9.000
(RCOU831)	◇	IA613A.B/L OT*ASRH*PLUMES S1.2	.950	180.000	10.000	9.000

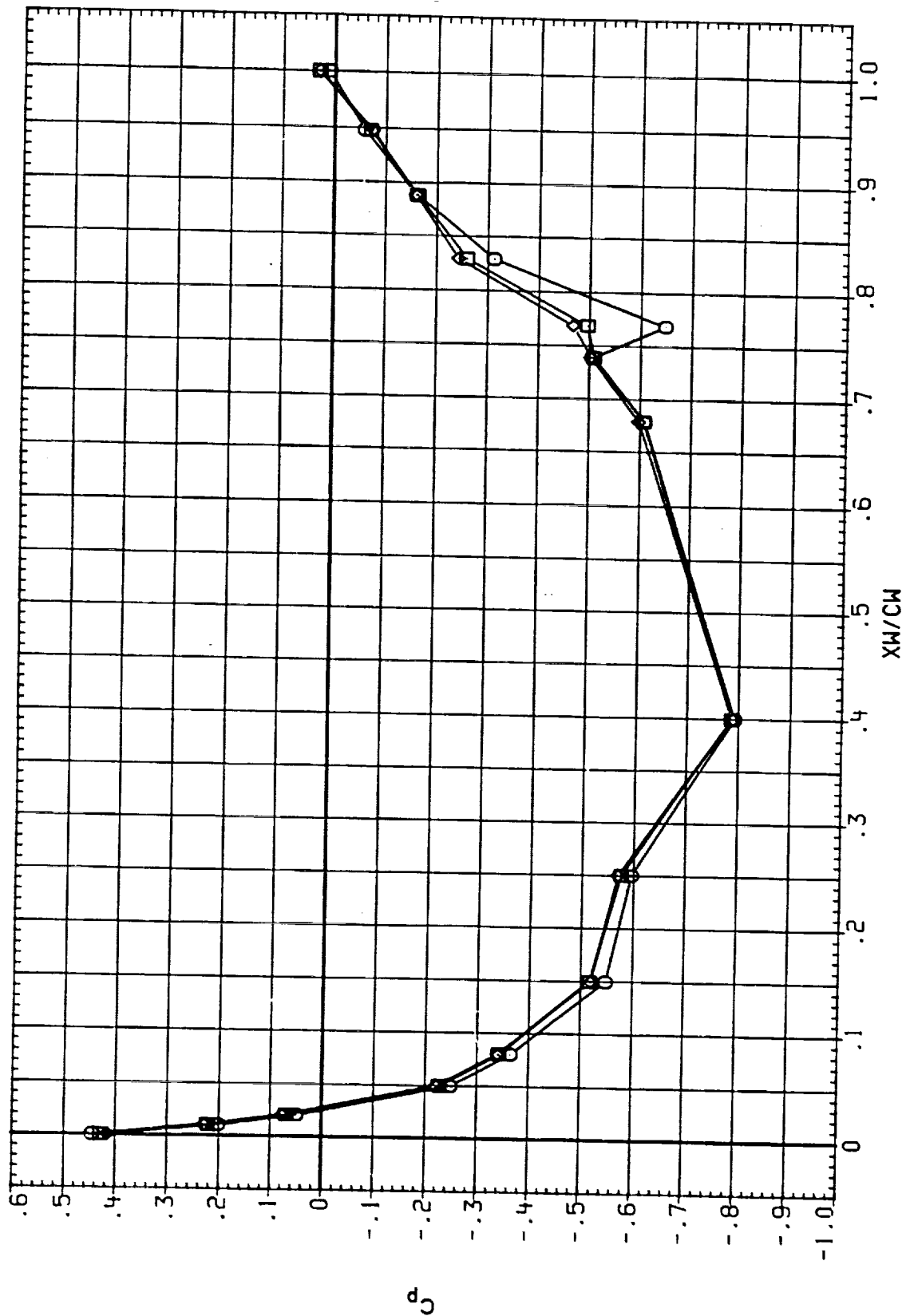


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU191)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOU461)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOU841)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.050	180.000	10.000	9.000

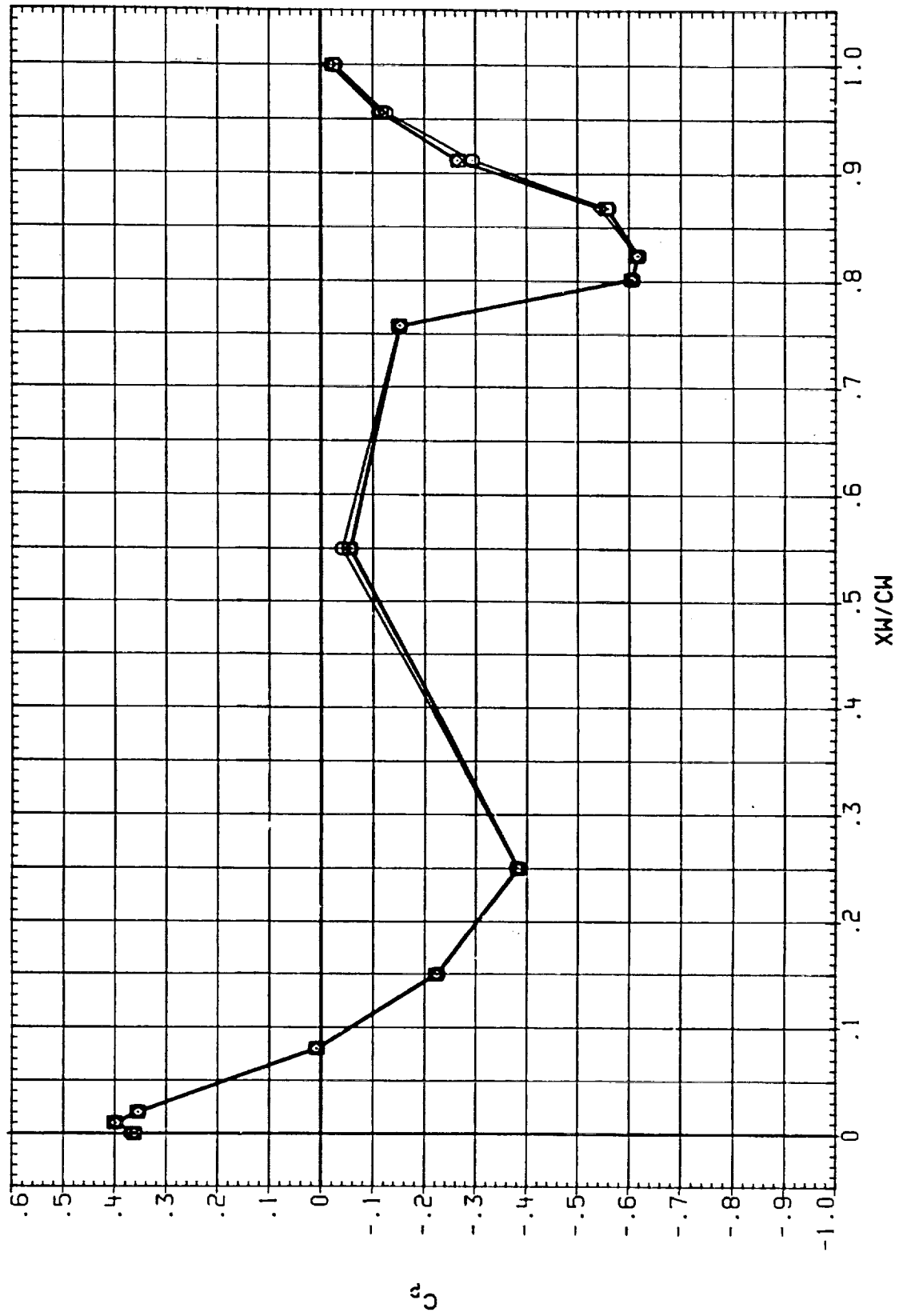


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0019)	○	IA613A. B/L OT+RSRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RC0046)	○	IA613A. B/L OT+ASRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RC0084)	◇	IA613A. B/L OT+ASRM+PLUMES SI.2	1.050	180.000	10.000	9.000
		-L.H. WING UPPER				
		-L.H. WING UPPER				
		-L.H. WING UPPER				

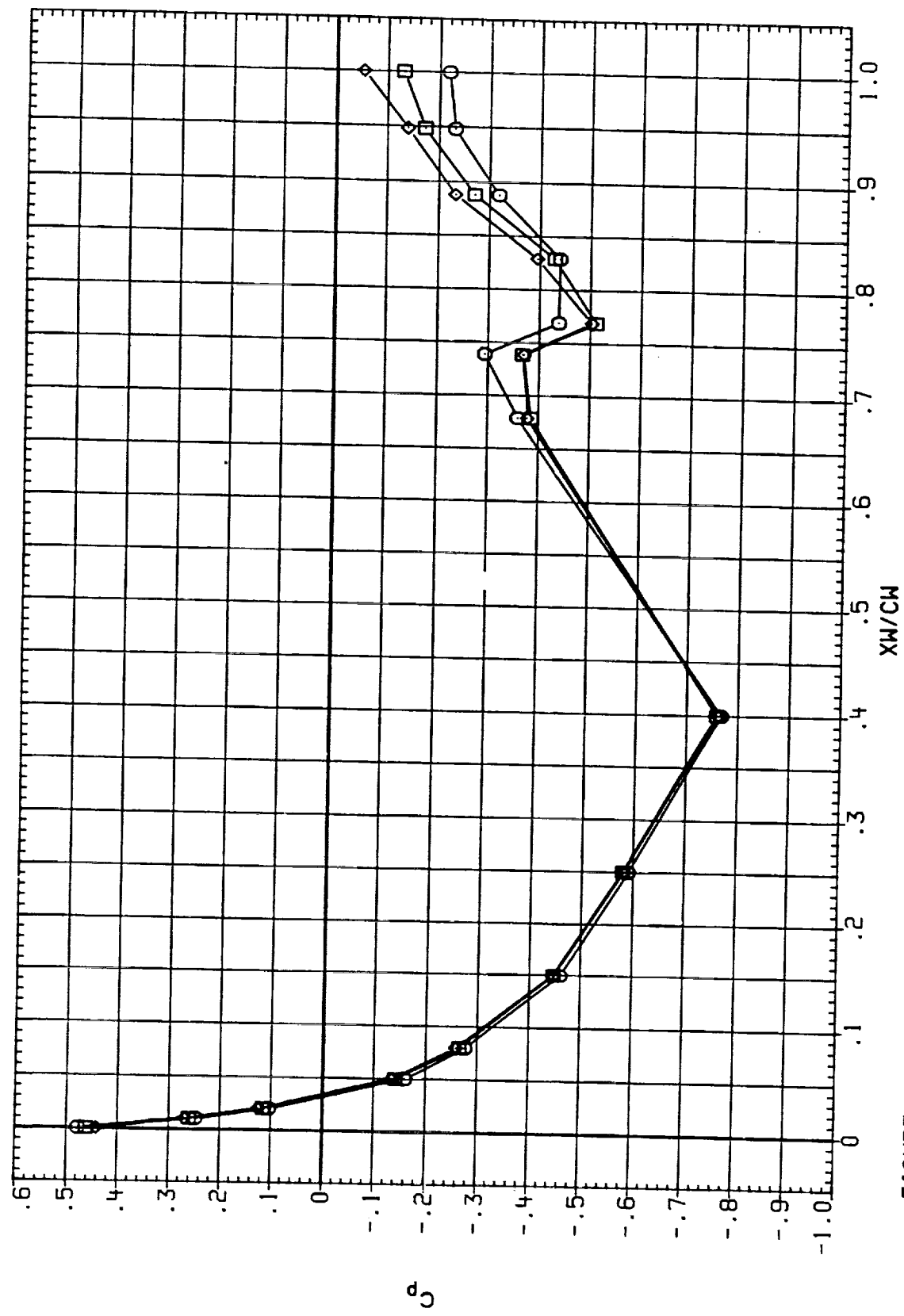


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE/BOX	IB-ELV	OB-ELV
(RCOU20)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOU47)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCOU85)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCOU83)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

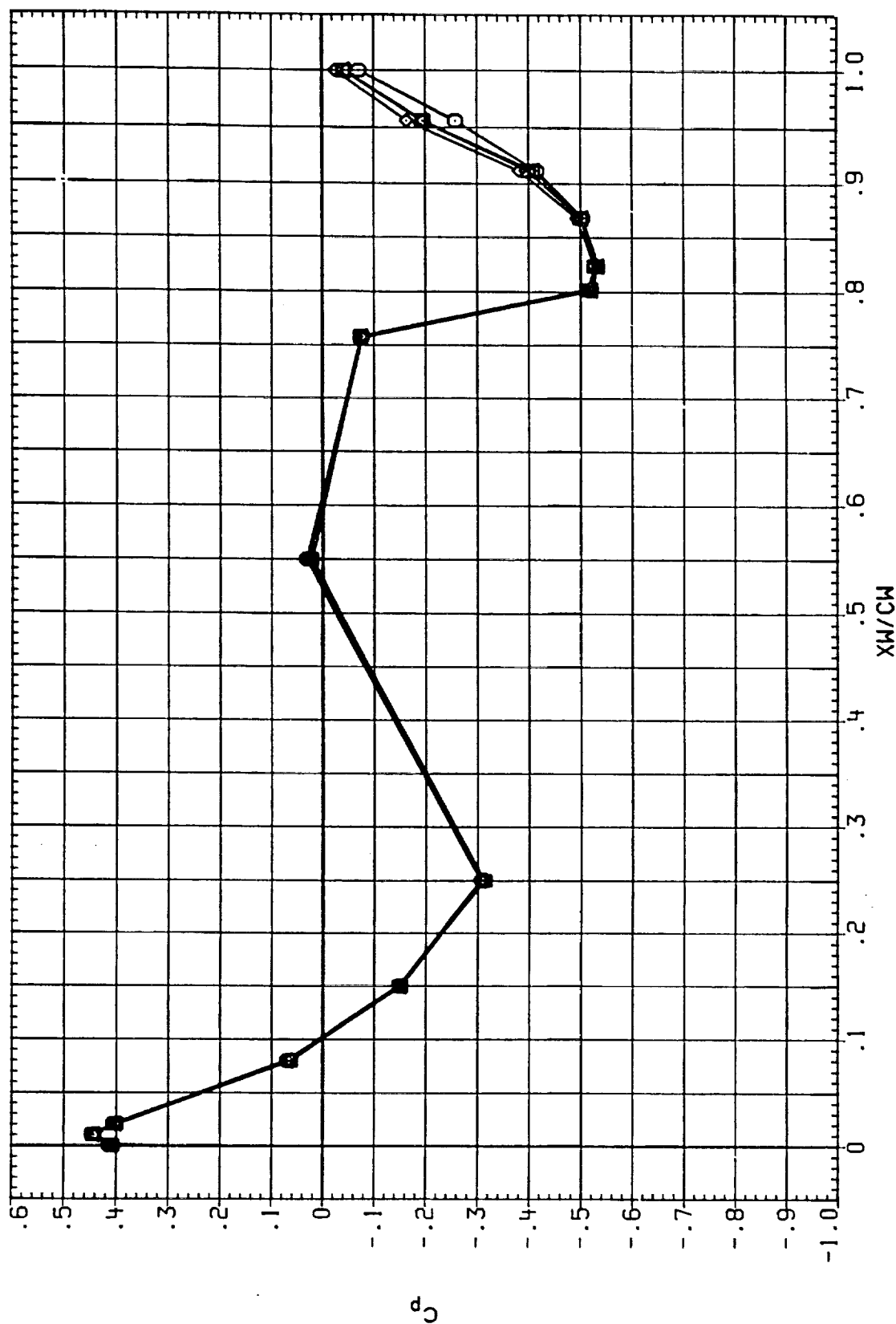


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
IRCOU201	○	IA613A, B/L OT+RSRM+PLUMES SI.2	1.100	.000	10.000	9.000
IRCOU471	□	IA613A, B/L OT+ASRM+PLUMES SI.2	1.100	.000	10.000	9.000
IRCOU851	△	IA613A, B/L OT+ASRM+PLUMES SI.2	1.100	180.000	10.000	9.000
IRCOUC31	△	IA613A, B/L OT+ASRM+PLUMES SI.2	1.100	999.000	10.000	5.000

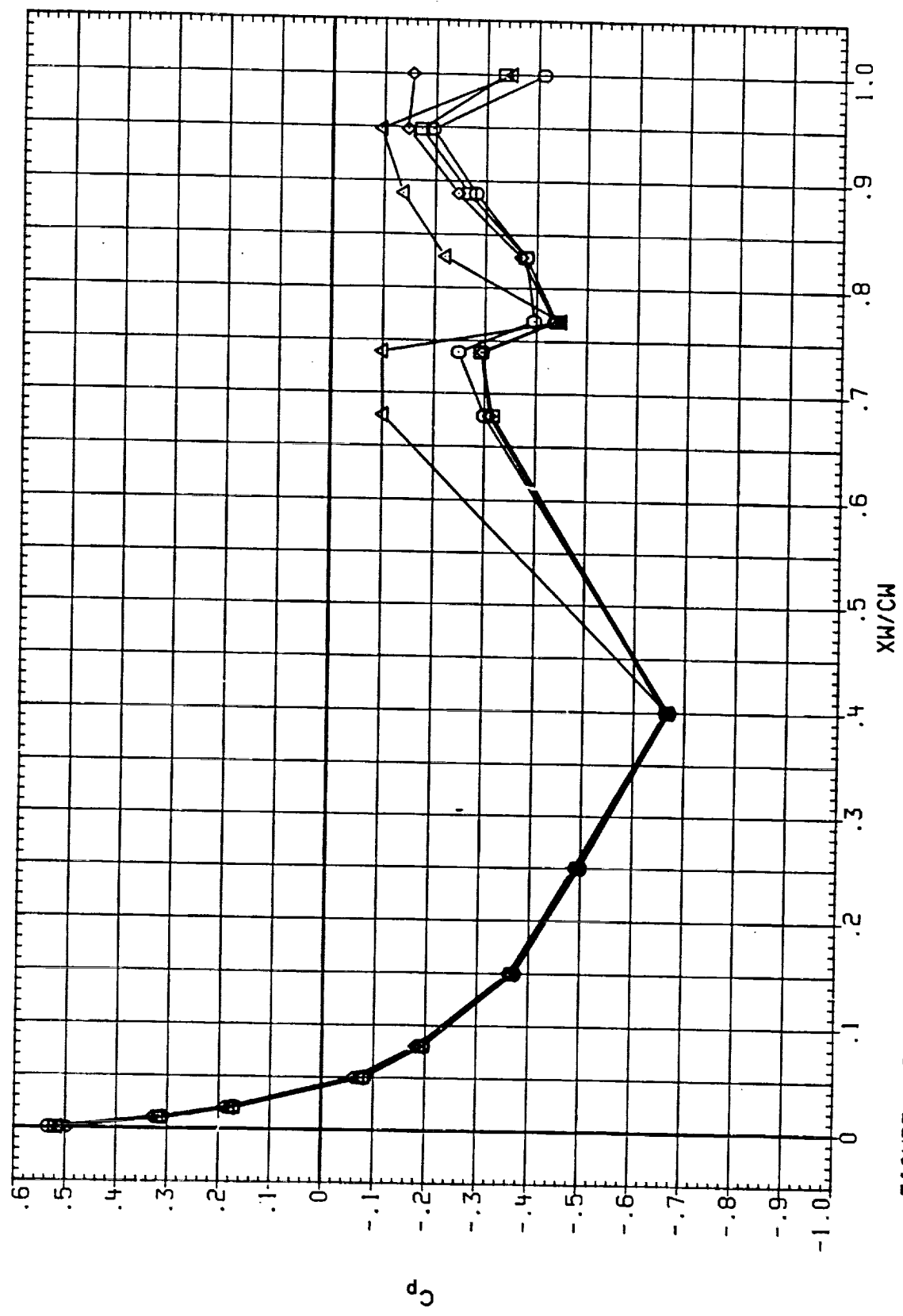


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU21)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOU48)	□	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOU88)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOUCH)	△	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	999.000	10.000	5.000

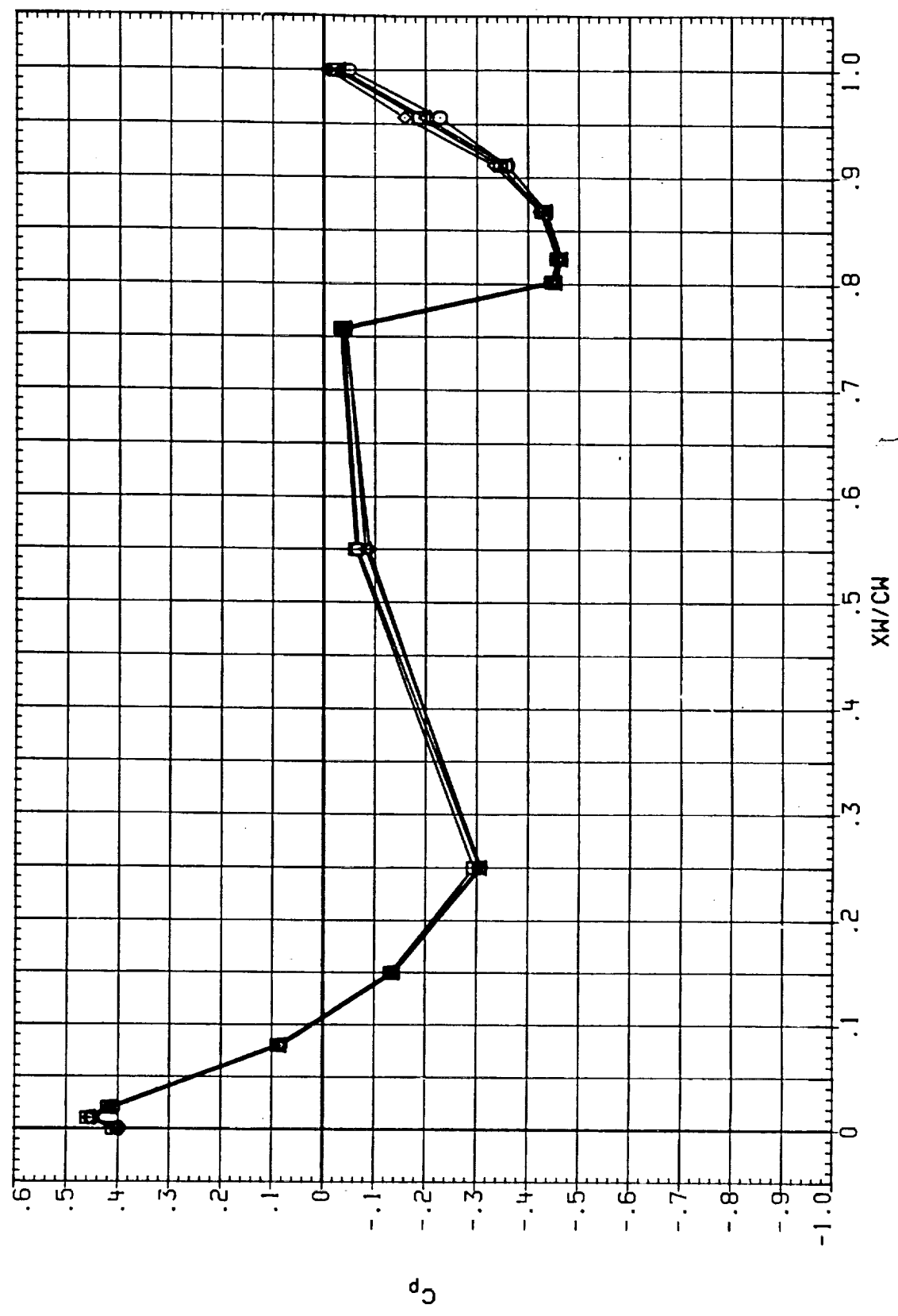


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0021)	○	IA613A, B/L OT+SRM+PLUMES SI,2	1.150	.000	10.000	9.000
(RC0048)	□	IA613A, B/L OT+SRM+PLUMES SI,2	1.150	.000	10.000	9.000
(RC0086)	△	IA613A, B/L OT+SRM+PLUMES SI,2	1.150	180.000	10.000	9.000
(XC0044)	◇	IA613A, B/L OT+SRM+PLUMES SI,2	1.150	999.000	10.000	5.000

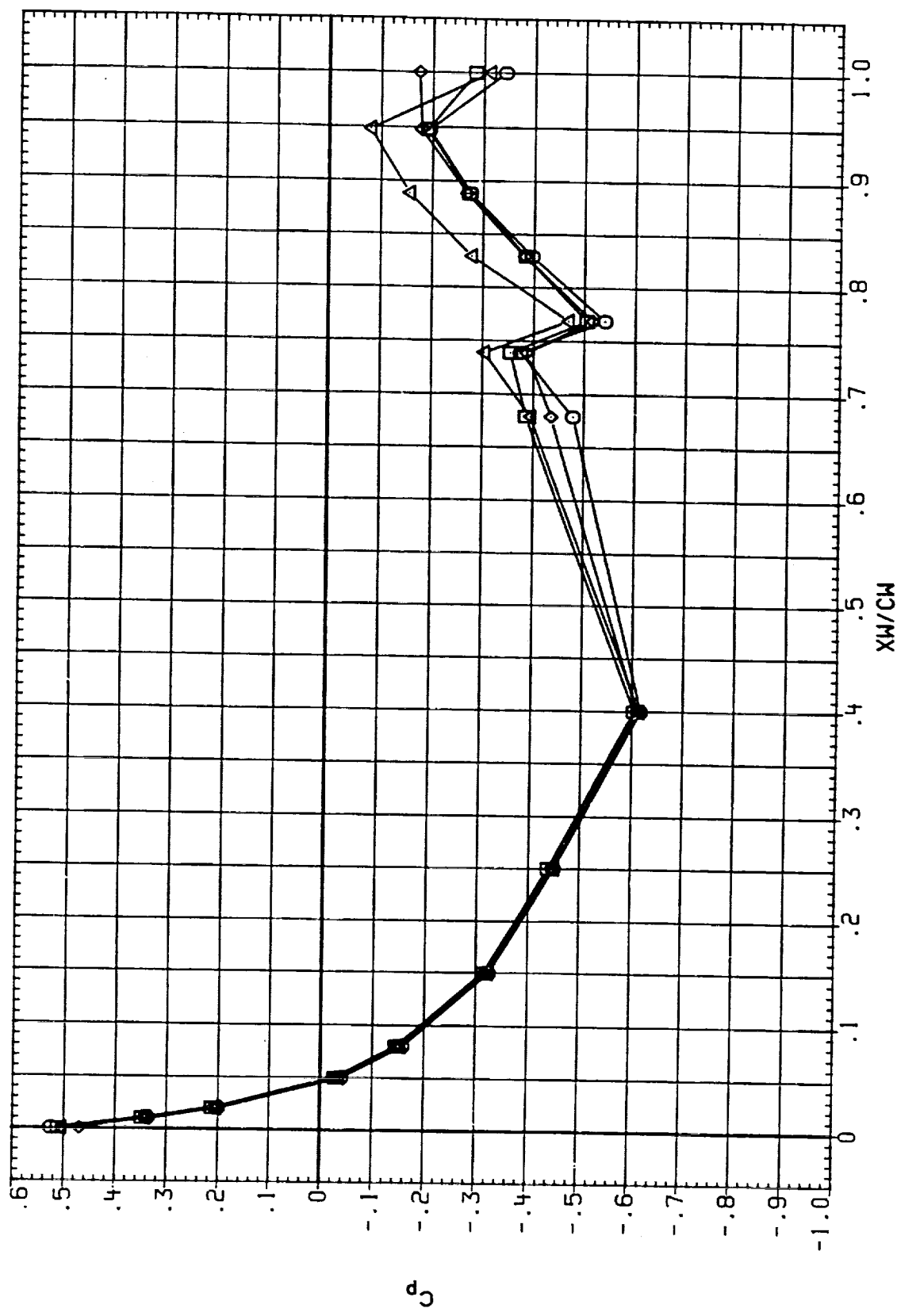


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0022)	○	IA613A-B/L OT+RSRM+PLUMES SI.2	1.250	.000	10.000	9.000
(RC0049)	◐	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	.000	10.000	9.000
(RC0087)	◑	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	180.000	10.000	9.000
(RC00C5)	△	IA613A-B/L OT+ASRM+PLUMES SI.2	1.250	999.000	10.000	5.000

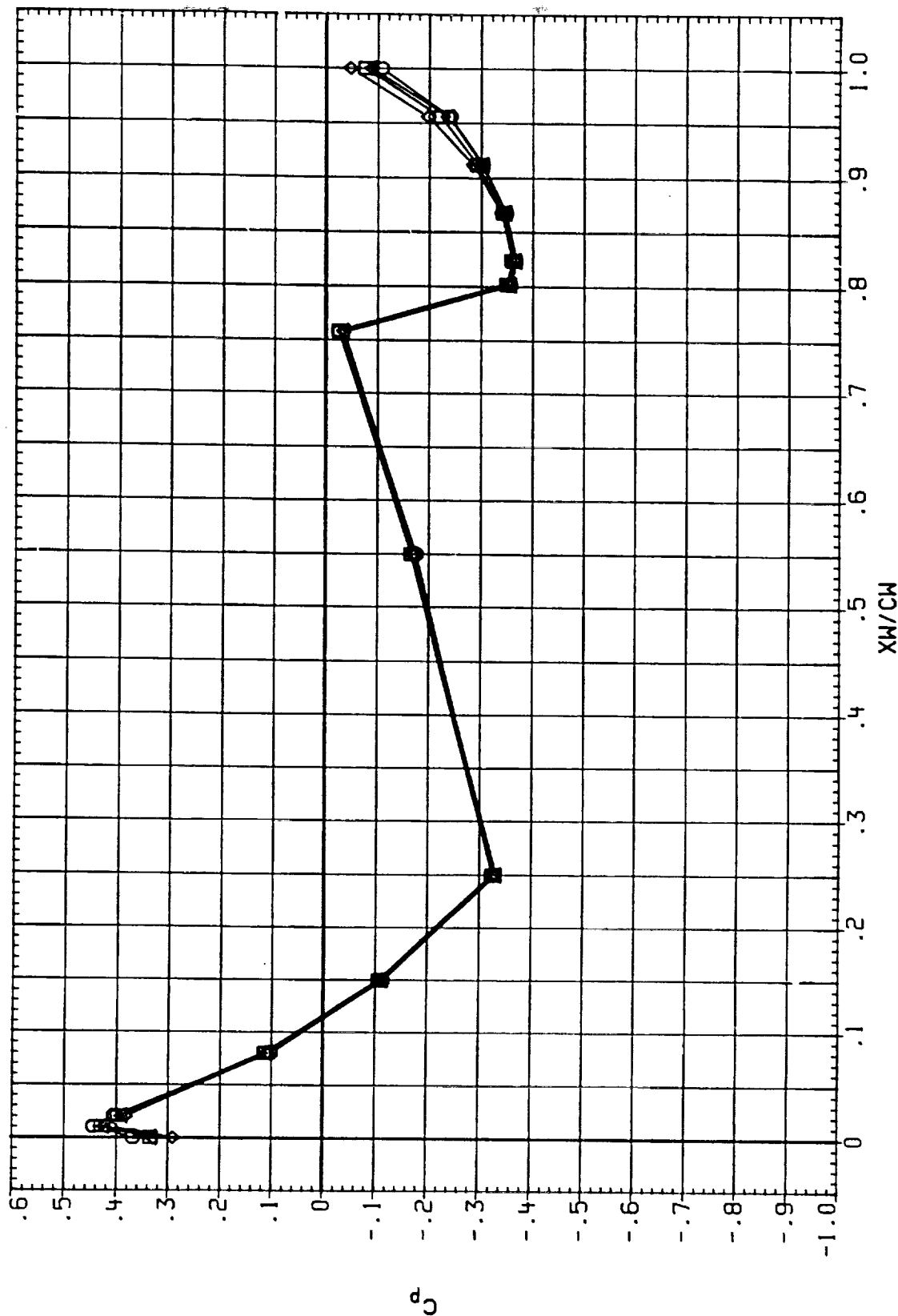


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOU221)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOU491)	□	IA613A.B/L OT+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOU871)	◇	IA613A.B/L OT+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOU851)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

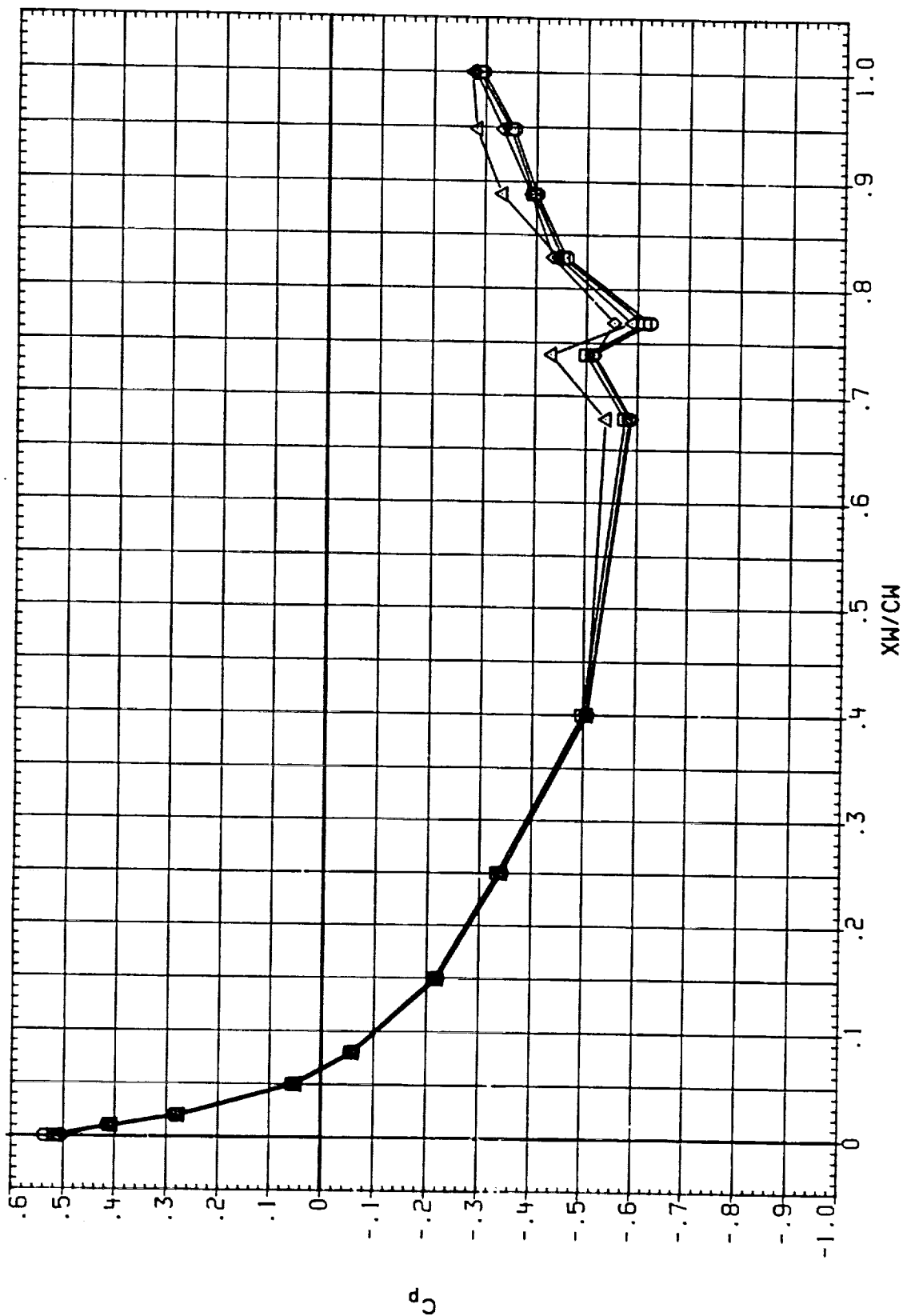


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH6)	□	IA613A.B/L OT+SRM+PLUMES SI.2	1.300	.000	10.000	9.000
(RCOU5H)	□	IA613A.B/L OT+SRM+PLUMES SI.3	1.300	.000	10.000	5.000
(RCOU89)	△	IA613A.B/L OT+SRM+PLUMES SI.3	1.300	180.000	10.000	5.000
(RCOU67)	△	IA613A.B/L OT+SRM+PLUMES SI.3	1.300	999.000	10.000	5.000

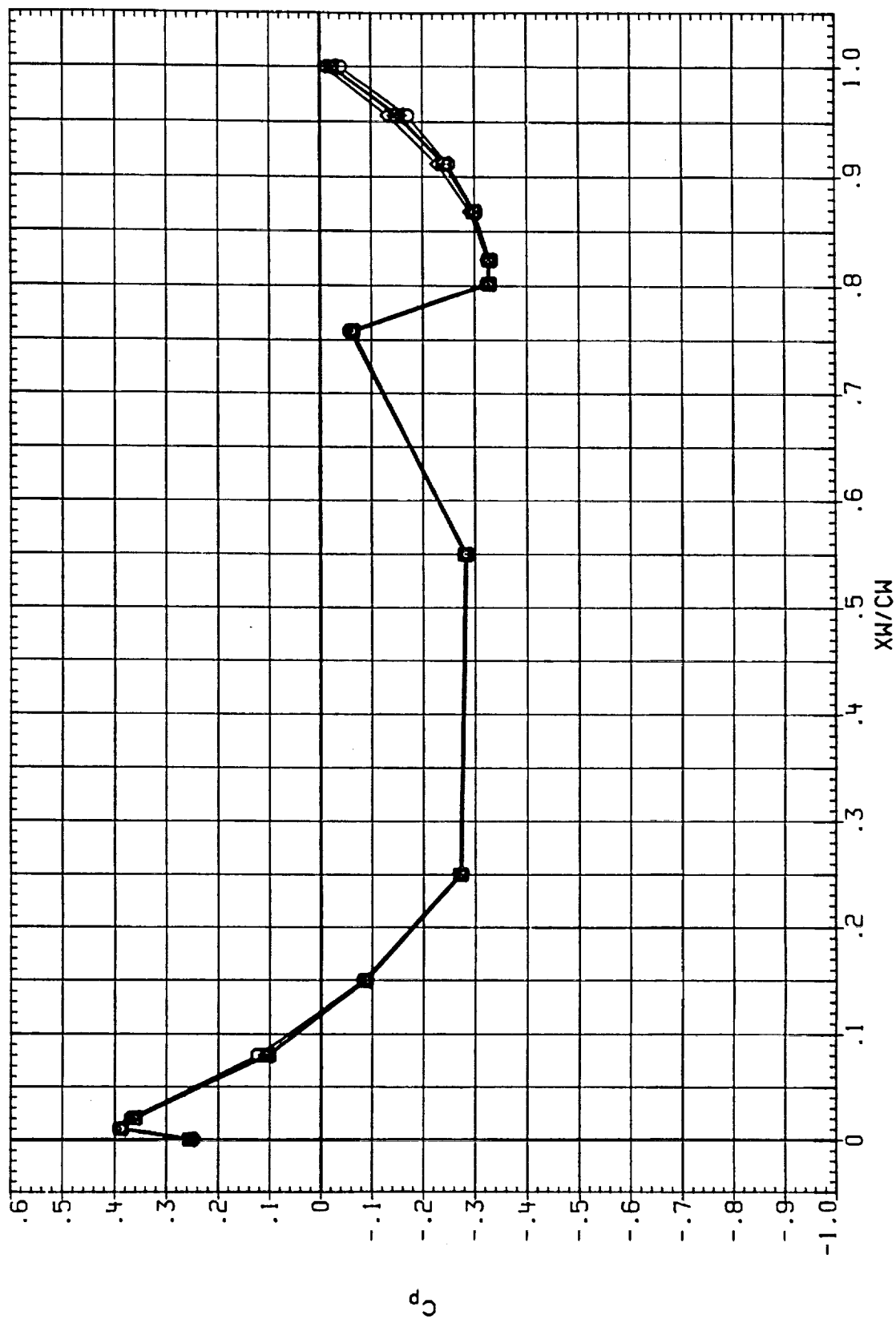


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC0U6) 1A613A, B/L OT+RSRH+PLUHS SI.2

(RC0U54) 1A613A, B/L OT+ASRH+PLUHS SI.3

(RC0U89) 1A613A, B/L OT+ASRH+PLUHS SI.3

(RC0UC7) 1A613A, B/L OT+ASRH+PLUHS SI.3

-L.H. HING UPPER

-L.H. HING UPPER

-L.H. HING UPPER

-L.H. HING UPPER

MACH IEABOX IB-ELV OB-ELV

1.300 .000 10.000 9.000

1.300 .000 10.000 5.000

1.300 180.000 10.000 5.000

1.300 999.000 10.000 5.000

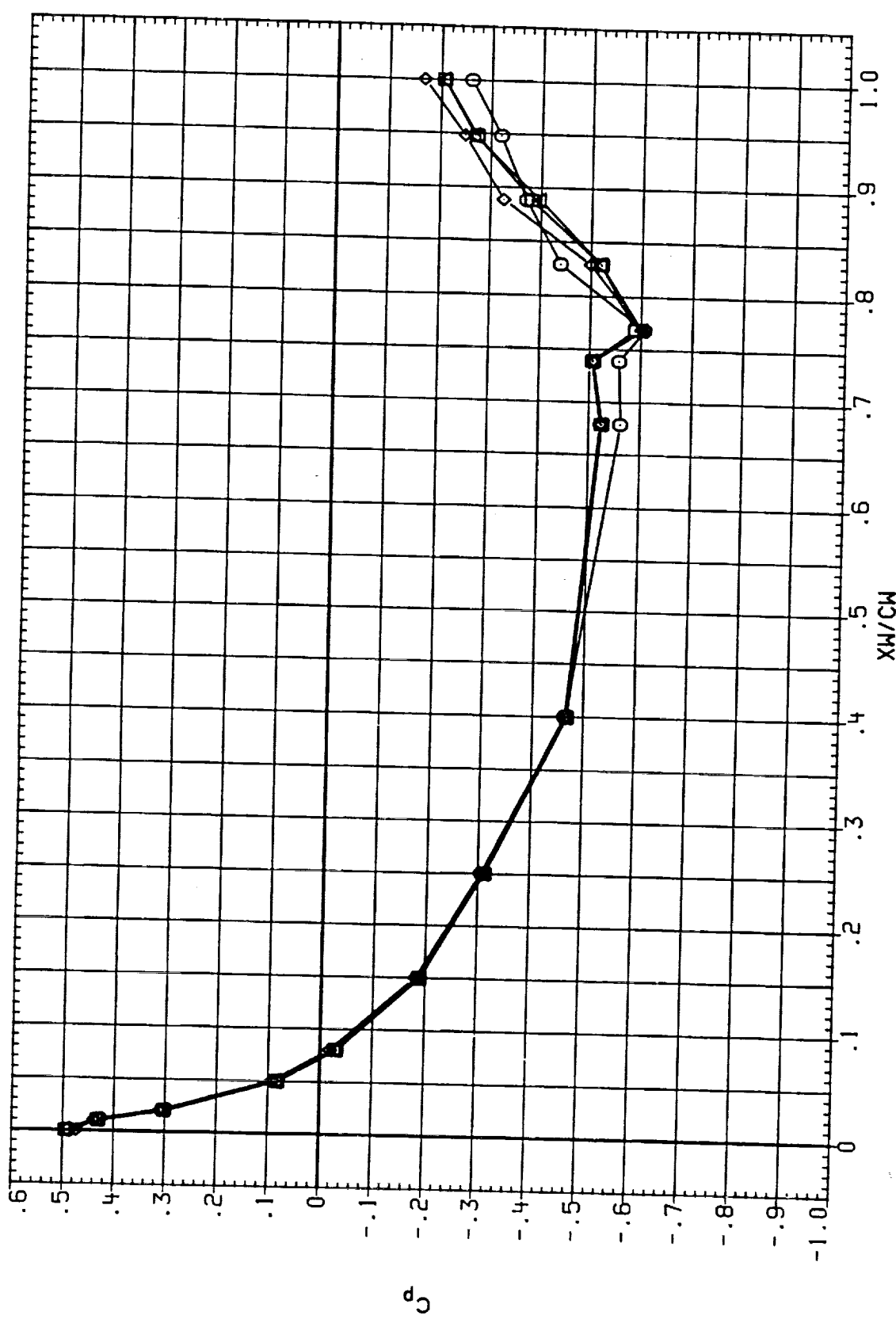


FIGURE 6 1A613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH7)	○	IA613A, B/L OT+SRM+PLUMES SI,2	1.350	.000	10.000	9.000
(RCOU55)	□	IA613A, B/L OT+ASRM+PLUMES SI,3	1.350	.000	10.000	5.000
(RCOU90)	◇	IA613A, B/L OT+ASRM+PLUMES SI,3	1.350	180.000	10.000	5.000
(RCOUC8)	△	IA613A, B/L OT+ASRM+PLUMES SI,3	1.350	999.000	10.000	5.000
		-L.H. WING UPPER				
		-L.H. WING UPPER				
		-L.H. WING UPPER				

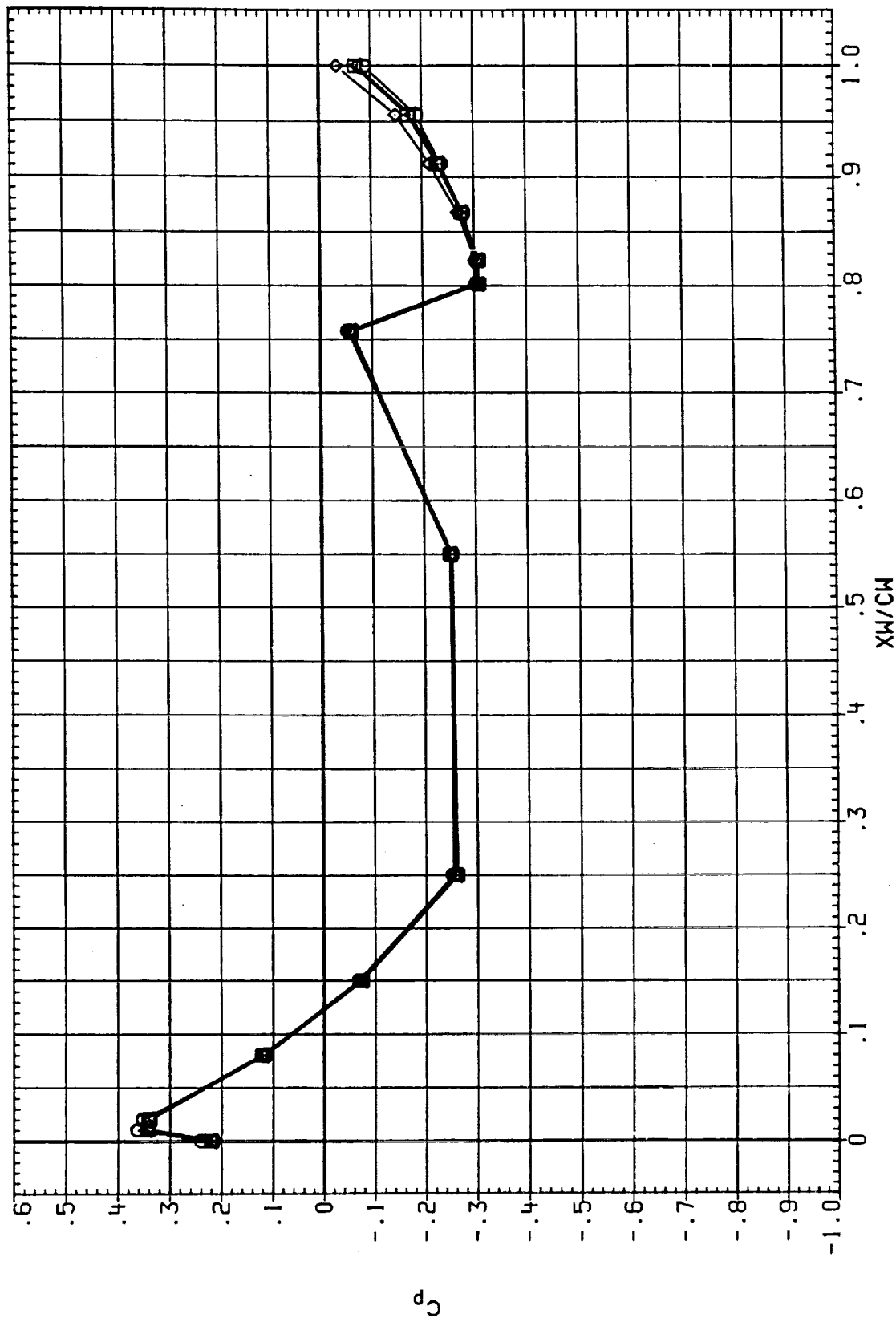


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH7)	○	IA613A.B/L OT*ASRM*PLUMES SI.2	1.350	.000	10.000	9.000
(RCOU55)	○	IA613A.B/L OT*ASRM*PLUMES SI.3	1.350	.000	10.000	5.000
(RCOU90)	○	IA613A.B/L OT*ASRM*PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOU68)	△	IA613A.B/L OT*ASRM*PLUMES SI.3	1.350	999.000	10.000	5.000

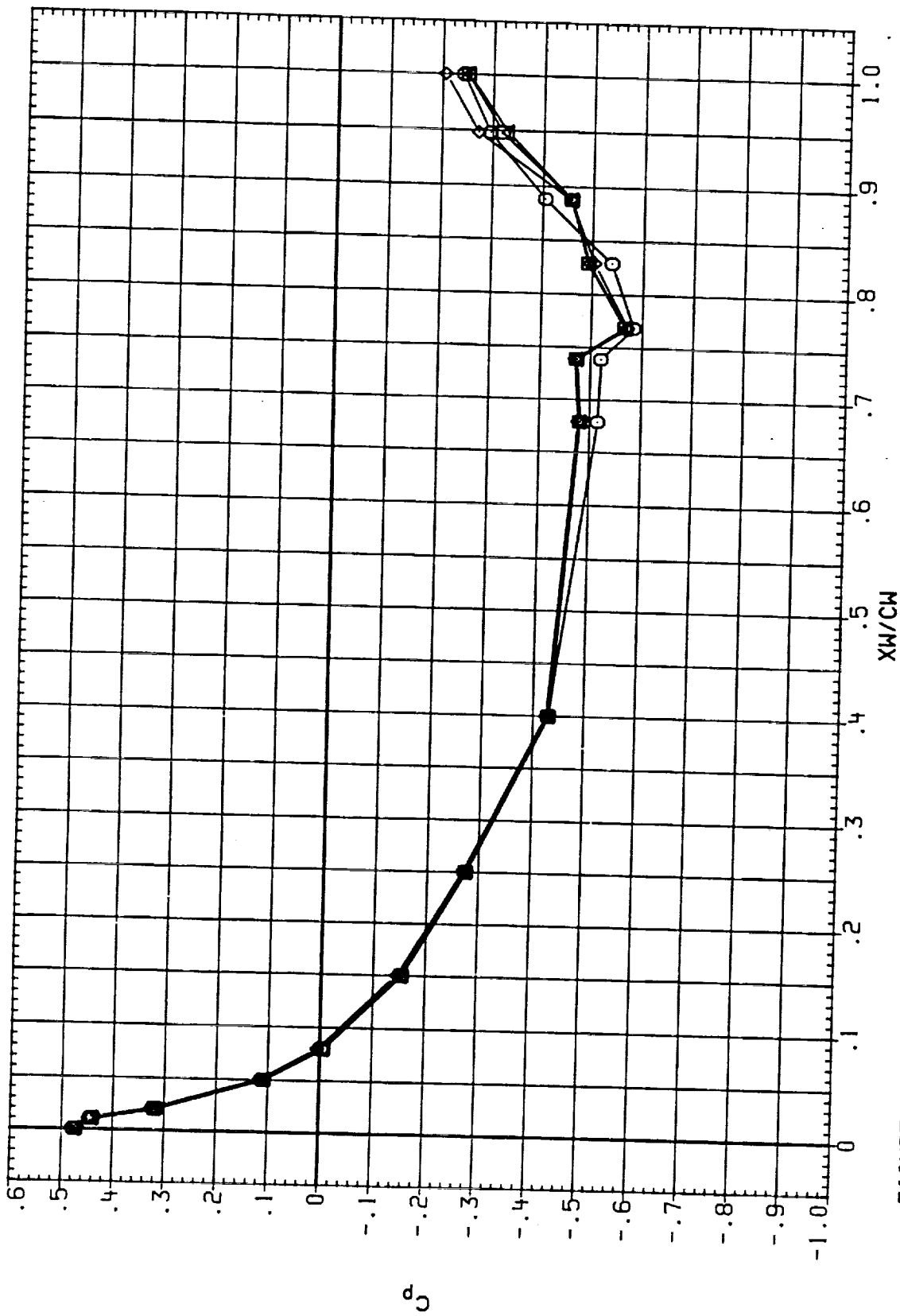


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH8)	○	IA613A, B/L OT+RSRH+PLUMES SI, 2	1.400	.000	10.000	9.000
(RCOU56)	□	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.400	.000	10.000	5.000
(RCOU91)	◇	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.400	180.000	10.000	5.000
(RCOU99)	△	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.400	999.000	10.000	5.000
		-L.H. WING UPPER				
		-L.H. WING UPPER				
		-L.H. WING UPPER				

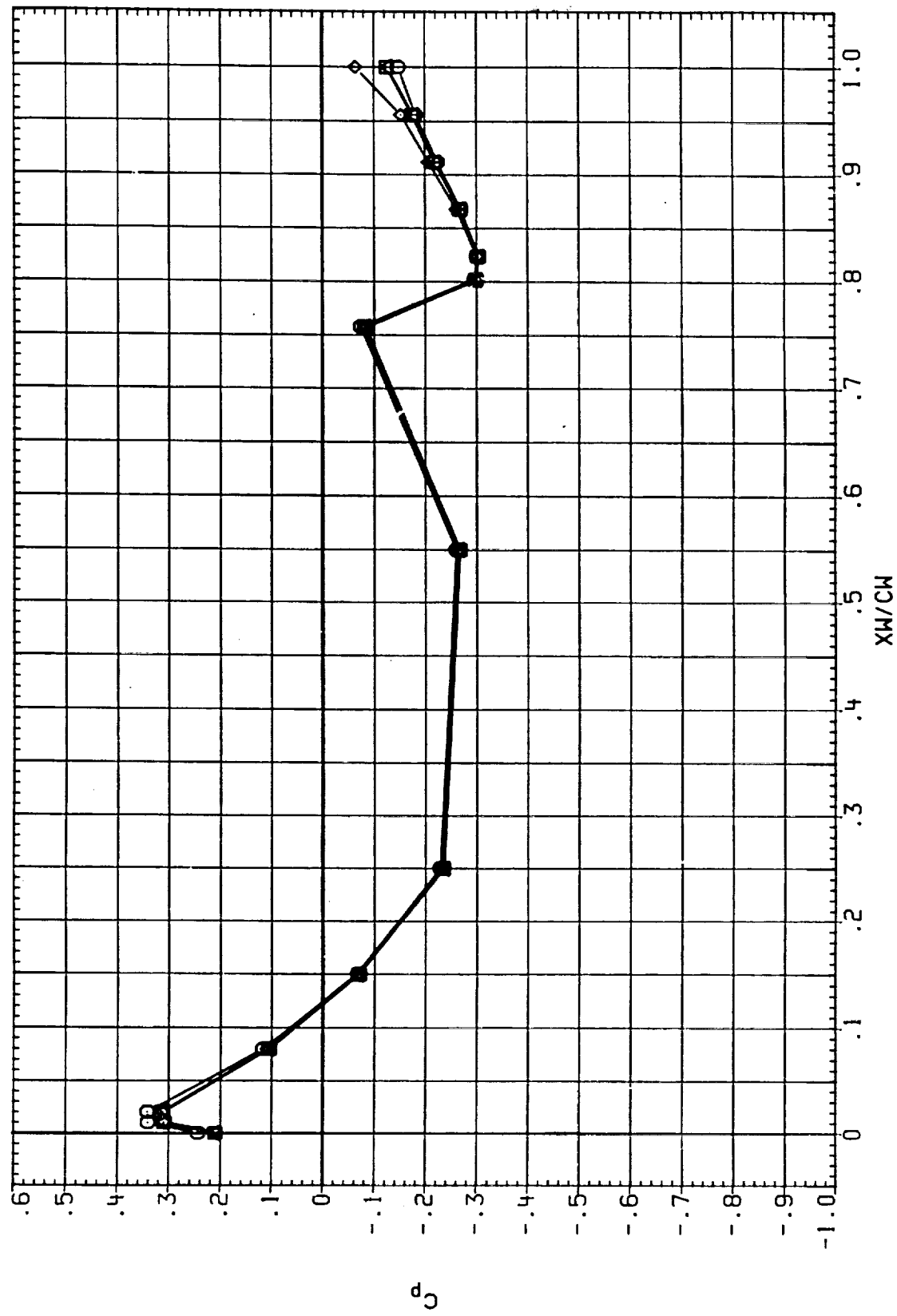


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH8)	○	IA613A.B/L OT*PSRM*PLUMES SI.2	1.400	.000	10.000	9.000
(RCOU56)	◇	IA613A.B/L OT*ASRM*PLUMES SI.3	1.400	.000	10.000	5.000
(RCOU91)	△	IA613A.B/L OT*ASRM*PLUMES SI.3	1.400	.000	10.000	5.000
(RCOU91)	△	IA613A.B/L OT*ASRM*PLUMES SI.3	1.400	.000	10.000	5.000

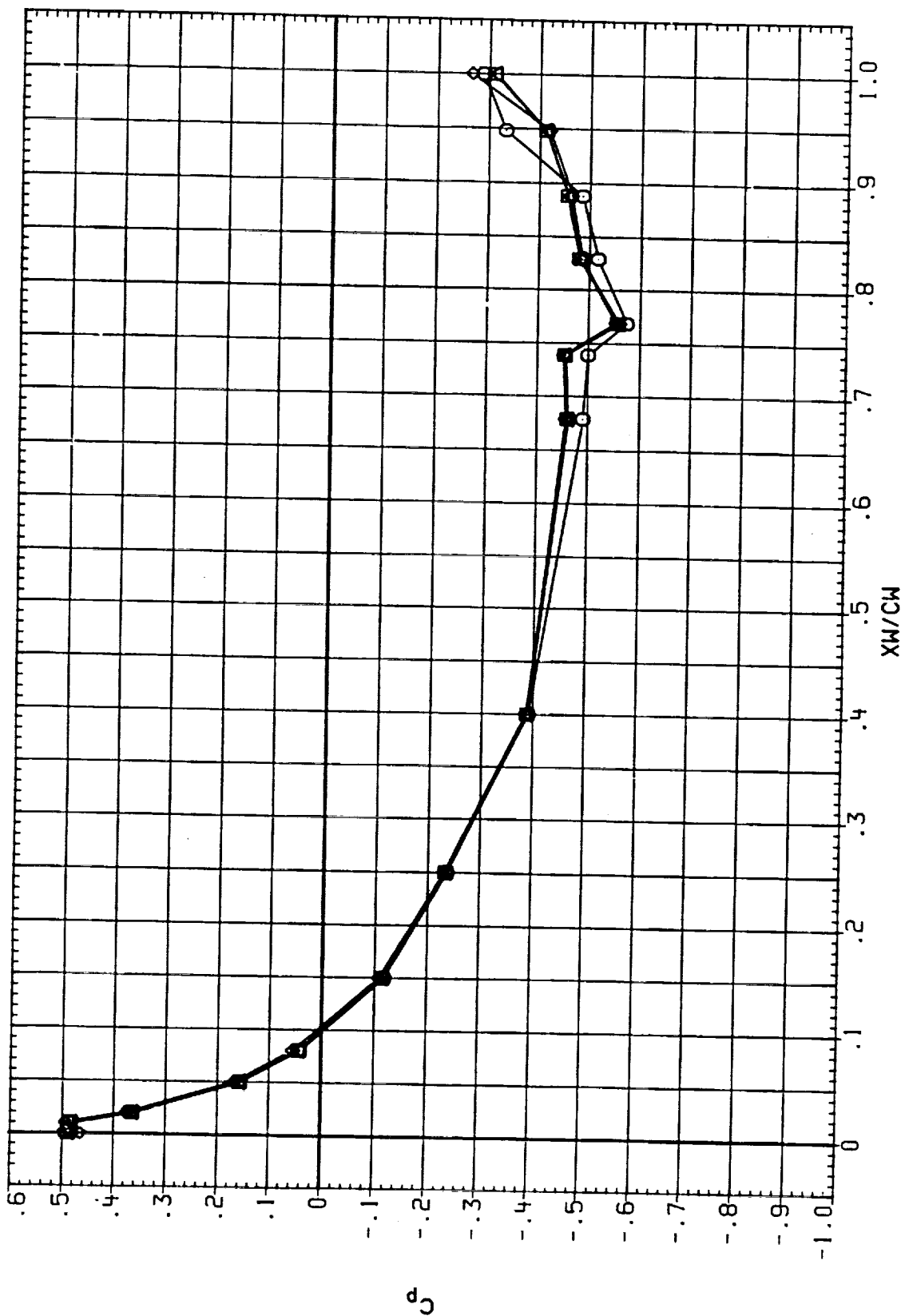


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOUH91)	□	IA613A, B/L OT+RSRH+PLUMES SI, 2	1.550	.000	10.000	9.000
(RCOU571)	□	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.550	.000	10.000	5.000
(RCOU921)	◇	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.550	180.000	10.000	5.000
(RCOU001)	△	IA613A, B/L OT+ASRH+PLUMES SI, 3	1.550	999.000	10.000	5.000

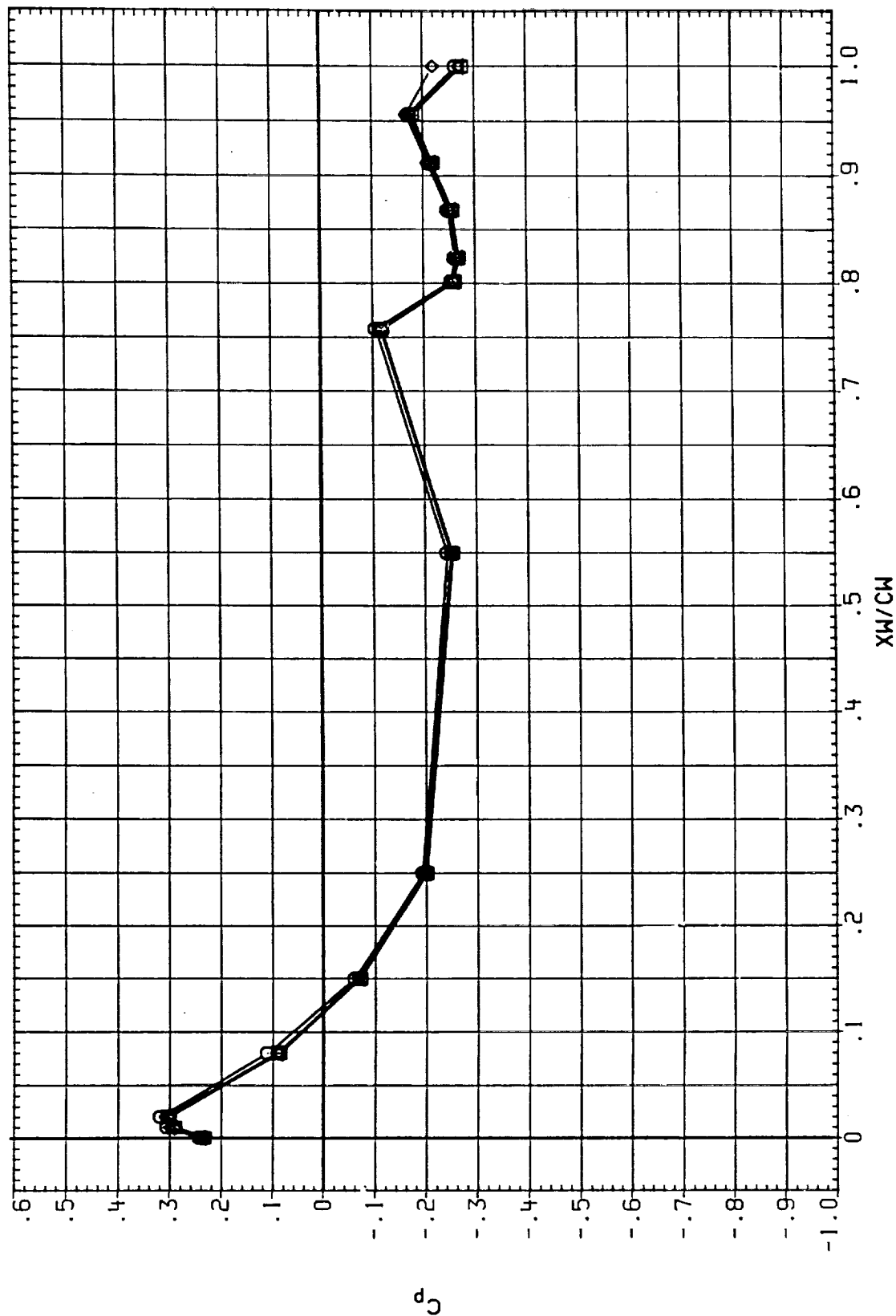


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .427    ALPHA = .000

DATA SET SYMBOL

CONFIGURATION DESCRIPTION

IA613A.B/L OT\*SRM\*PLUMES SI.2 -L.H. HING UPPER  
 IA613A.B/L OT\*SRM\*PLUMES SI.3 -L.H. HING UPPER  
 IA613A.B/L OT\*SRM\*PLUMES SI.3 -L.H. HING UPPER  
 IA613A.B/L OT\*SRM\*PLUMES SI.3 -L.H. HING UPPER

MACH IEABOX IB-ELV OB-ELV  
 1.550 .000 10.000 9.000  
 1.550 .000 10.000 5.000  
 1.550 180.000 10.000 5.000  
 1.550 939.000 10.000 5.000

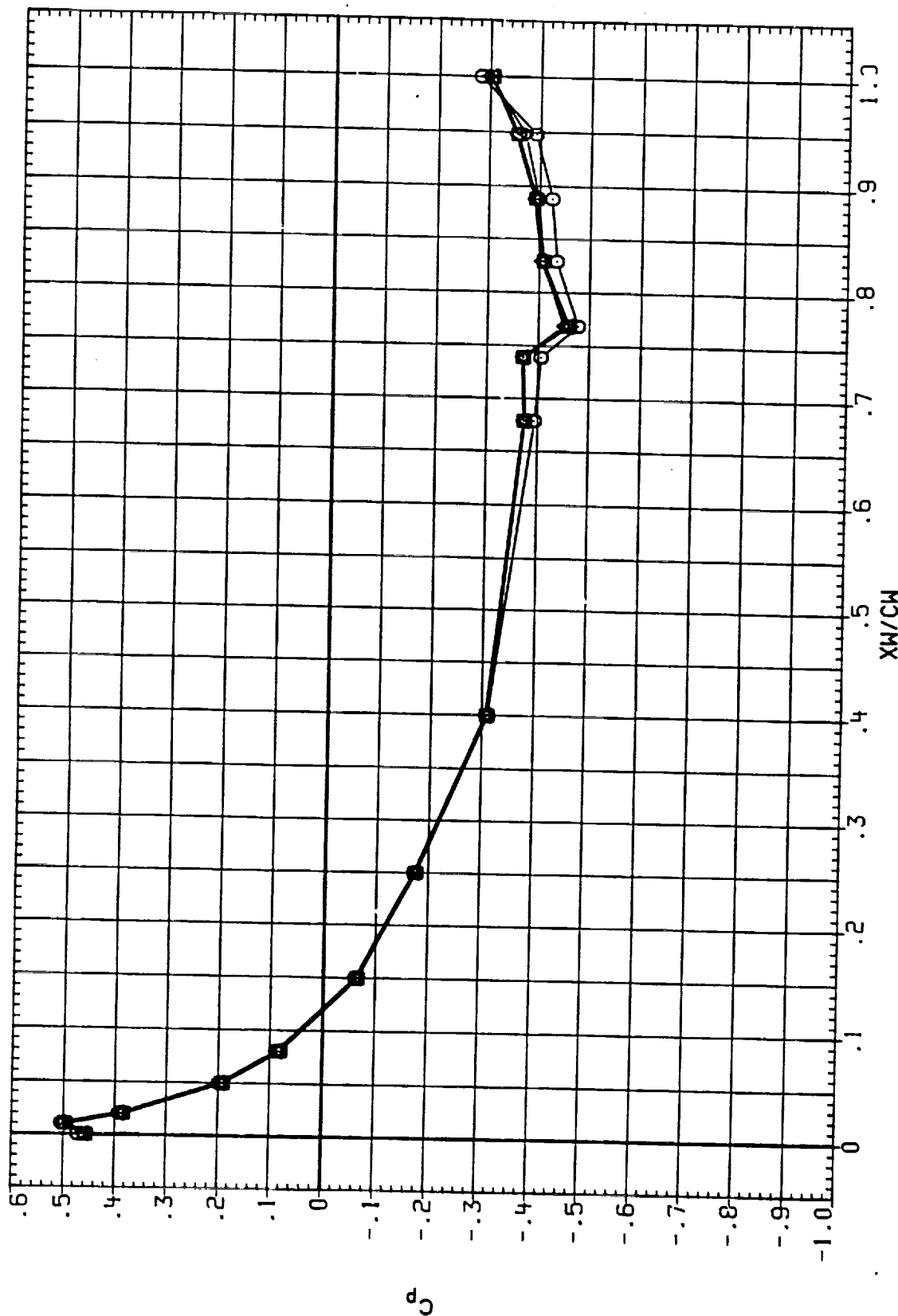


FIGURE 6 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - UPPER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL151)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL421)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLC1)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

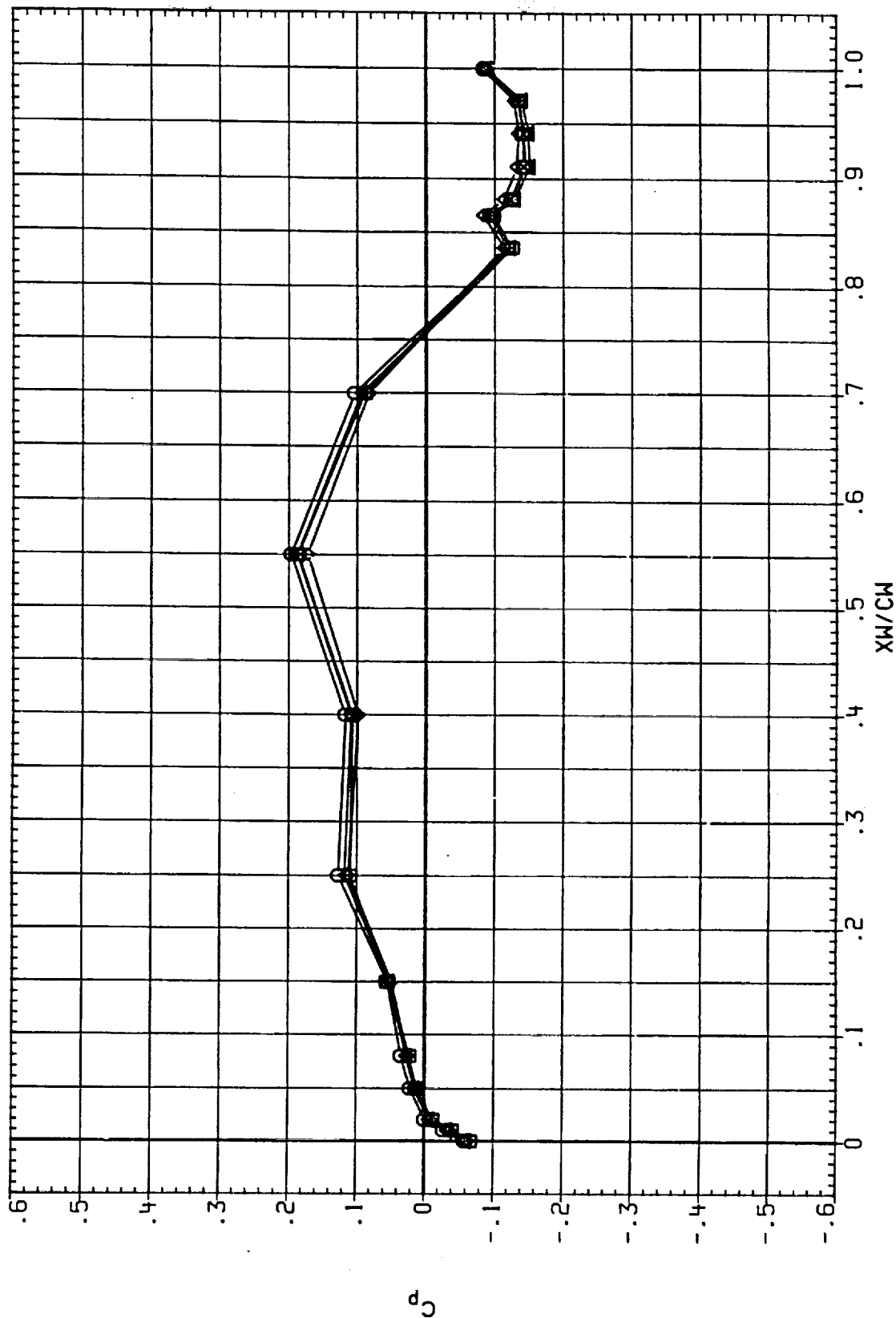


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL15)	○	IA613A, B/L OT+SRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL42)	□	IA613A, B/L OT+SRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	◇	IA613A, B/L OT+SRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLC1)	△	IA613A, B/L OT+SRH+PLUMES S1.2	.600	999.000	10.000	5.000

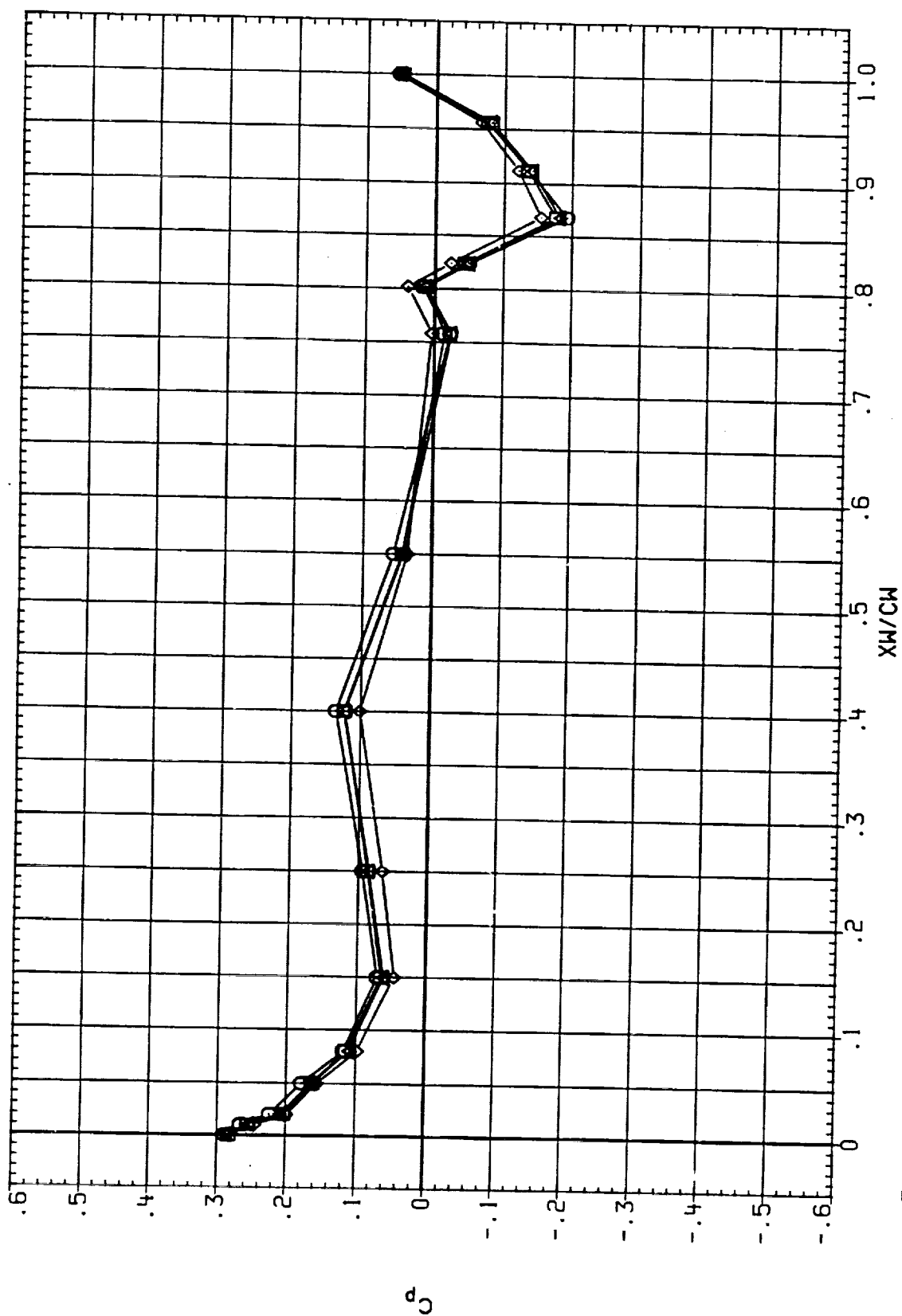


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .427 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL15)	○	IA613A, B/L OT+PSRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL12)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	.000	10.000	9.000
(RCOL80)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	180.000	10.000	9.000
(RCOLC1)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	.600	999.000	10.000	5.000

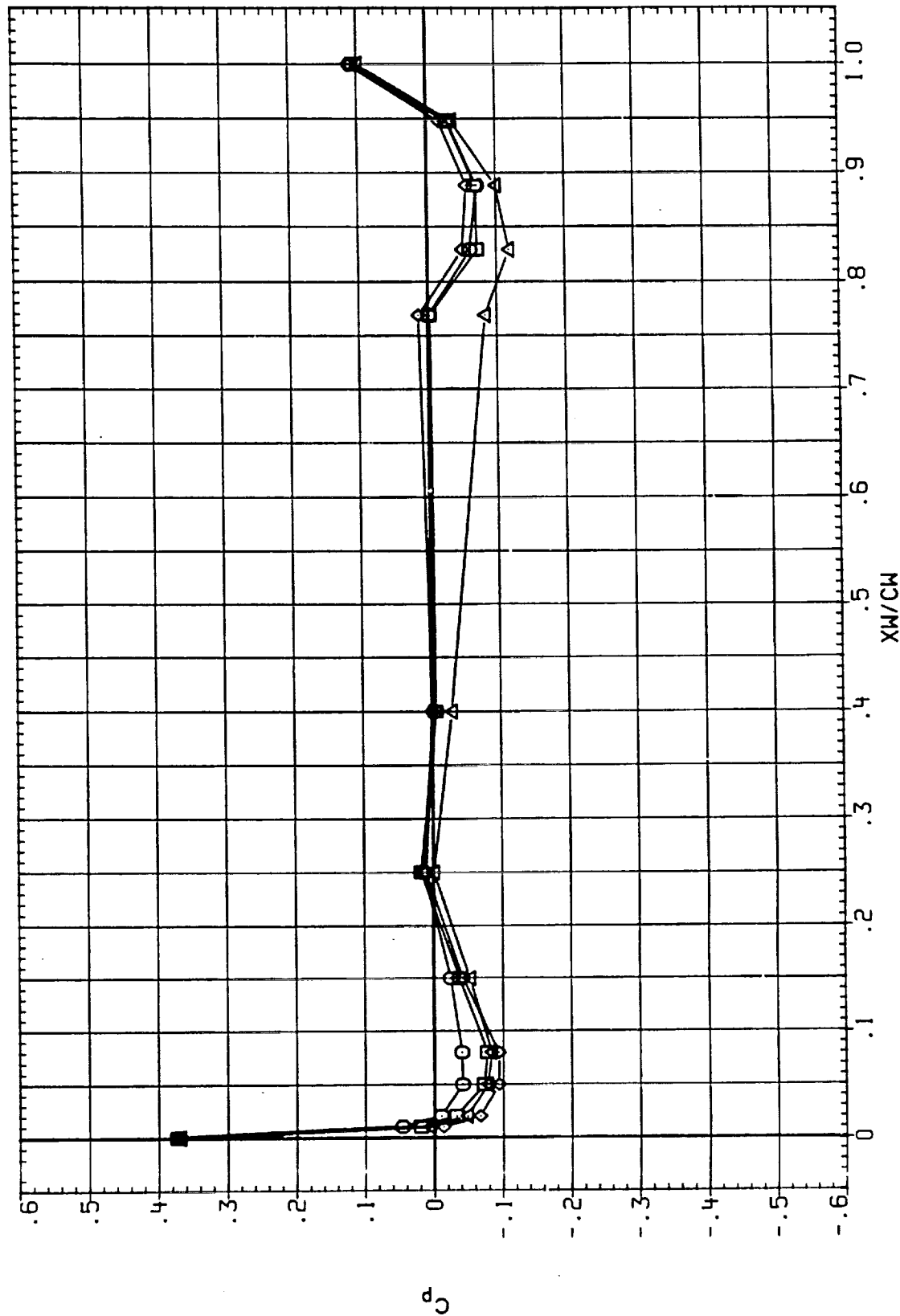


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - LOWER SURFACE  
BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IR-ELV	OB-ELV
(RCOL16)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOL43)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOL81)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	180.000	10.000	9.000

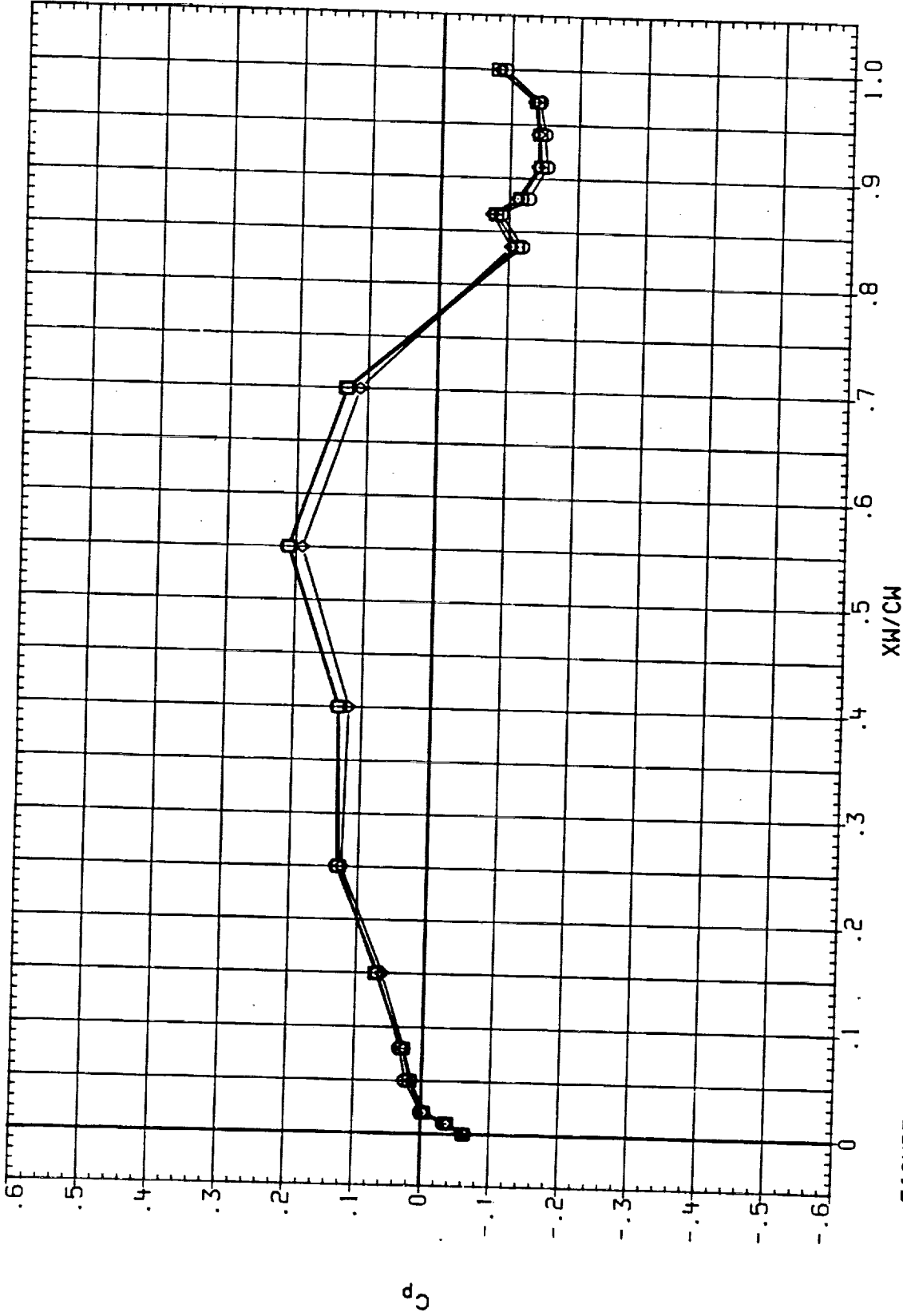


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .299    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
IRCOL161	○	IA613A.B/L OT+RSRH+PLUMES SI.2	.800	.000	10.000	9.000
IRCOL421	□	IA613A.B/L OT+ASRH+PLUMES SI.2	.800	.000	10.000	9.000
IRCOL811	◇	IA613A.B/L OT+ASRH+PLUMES SI.2	.800	180.000	10.000	9.000

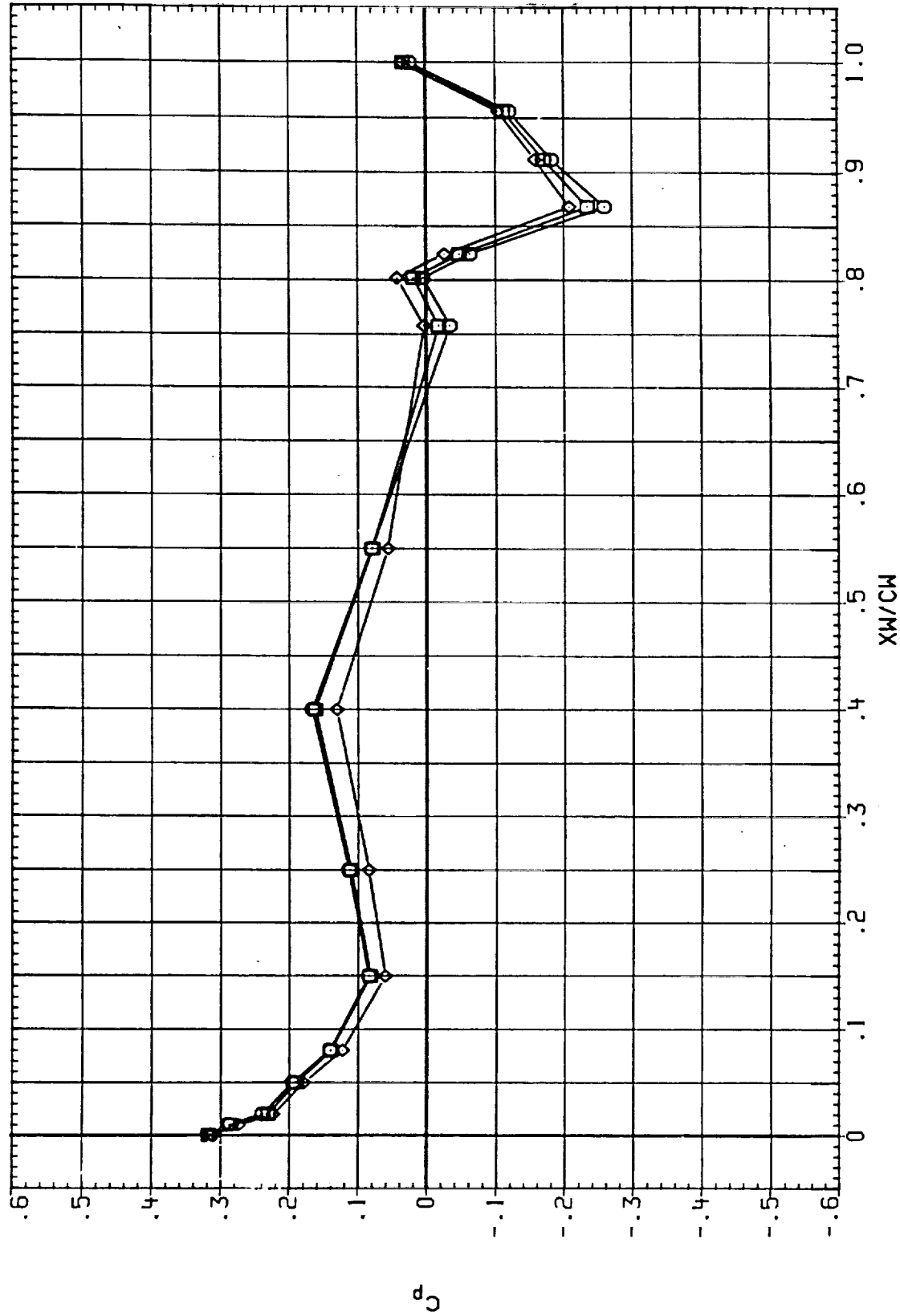


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL161)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOL43)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	.800	.000	10.000	9.000
(RCOL81)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	.800	180.000	10.000	9.000

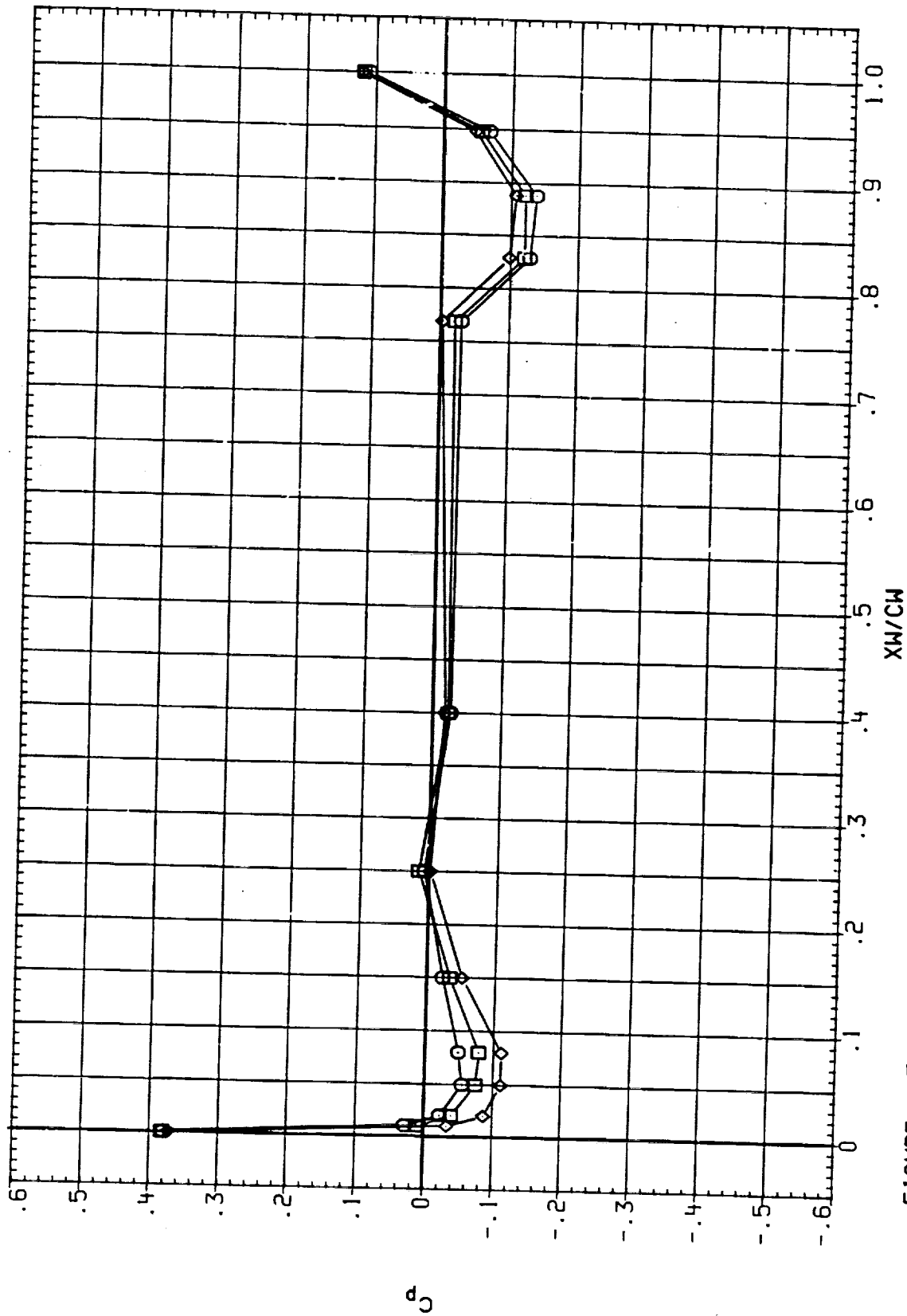


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL17)	○	IA613A, B/L OT+PSRM+PLUNES S1.2	.900	.000	10.000	9.000
(RCOL44)	□	IA613A, B/L OT+ASRM+PLUNES S1.2	.900	.000	10.000	9.000
(RCOL82)	◇	IA613A, B/L OT+ASRM+PLUNES S1.2	.900	180.000	10.000	9.000
(RCOLC2)	△	IA613A, B/L OT+ASRM+PLUNES S1.2	.900	999.000	10.000	5.000

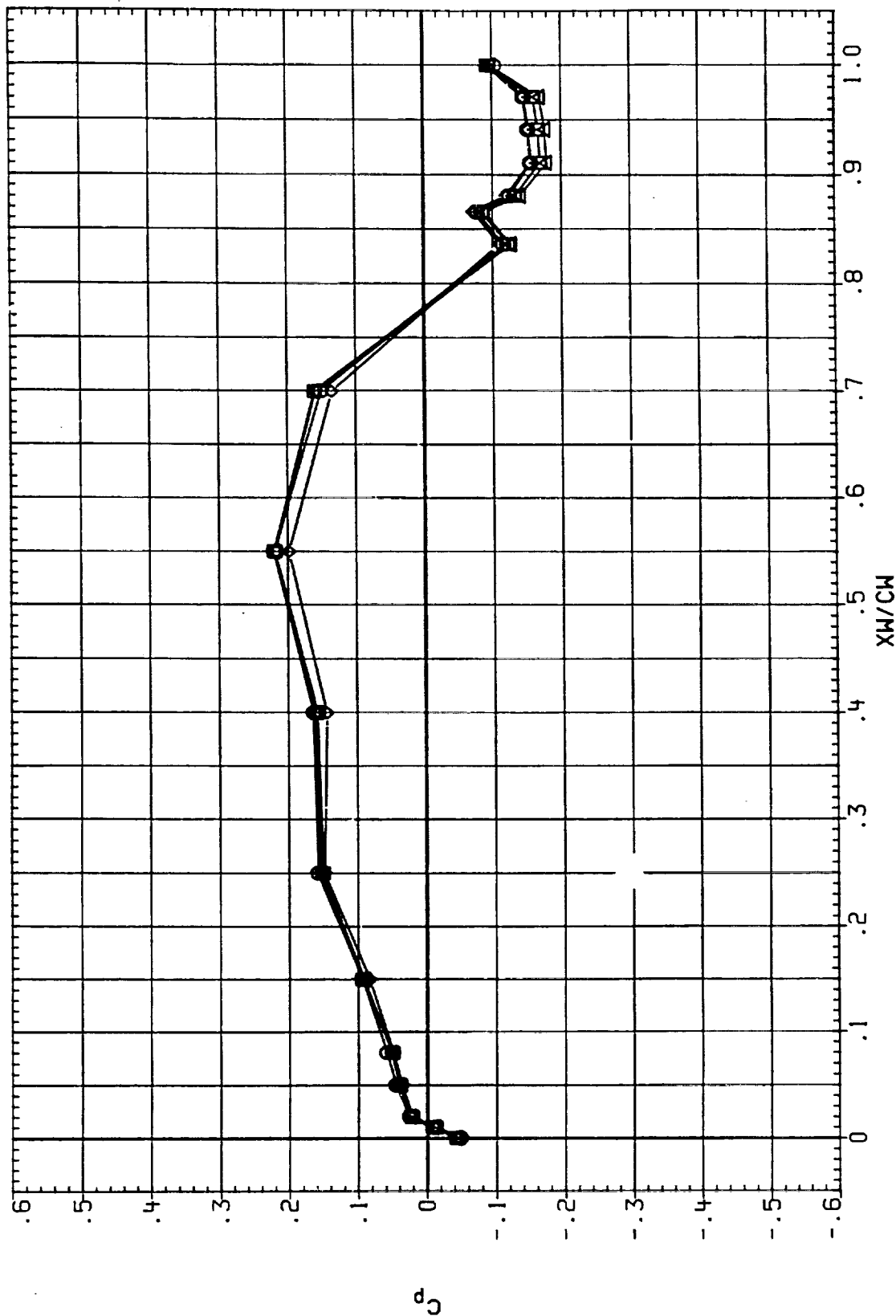


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .299    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL17)	○	IA613A.B/L OT+SRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOL44)	□	IA613A.B/L OT+SRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOL93)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	.900	180.000	10.000	9.000
(RCOLC2)	△	IA613A.B/L OT+SRM+PLUMES SI.2	.900	999.000	10.000	5.000

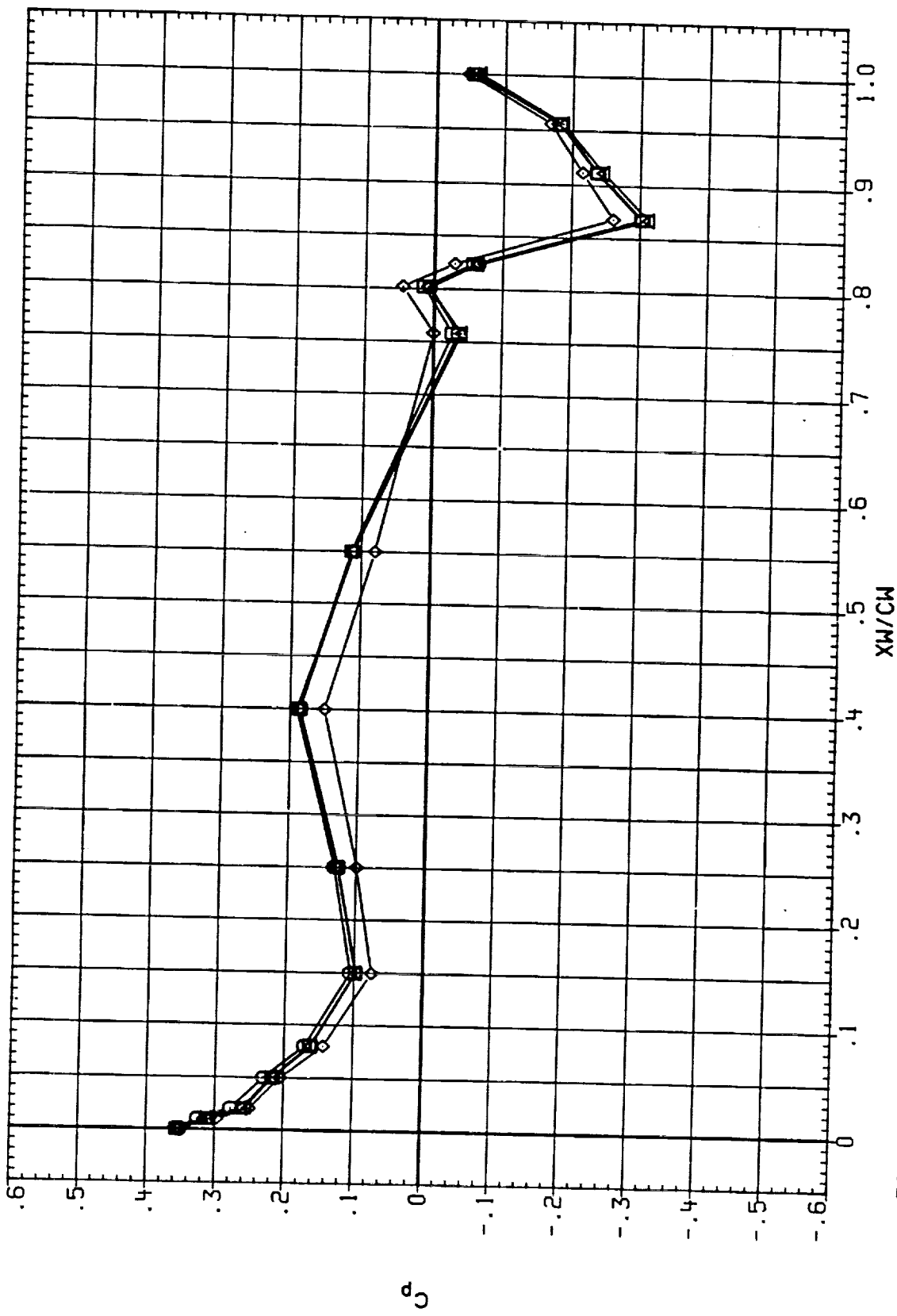


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL17)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	.900	.000	10.000	3.000
(RCOL44)	□	IA613A.B/L OT+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCOL82)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCOLC2)	△	IA613A.B/L OT+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

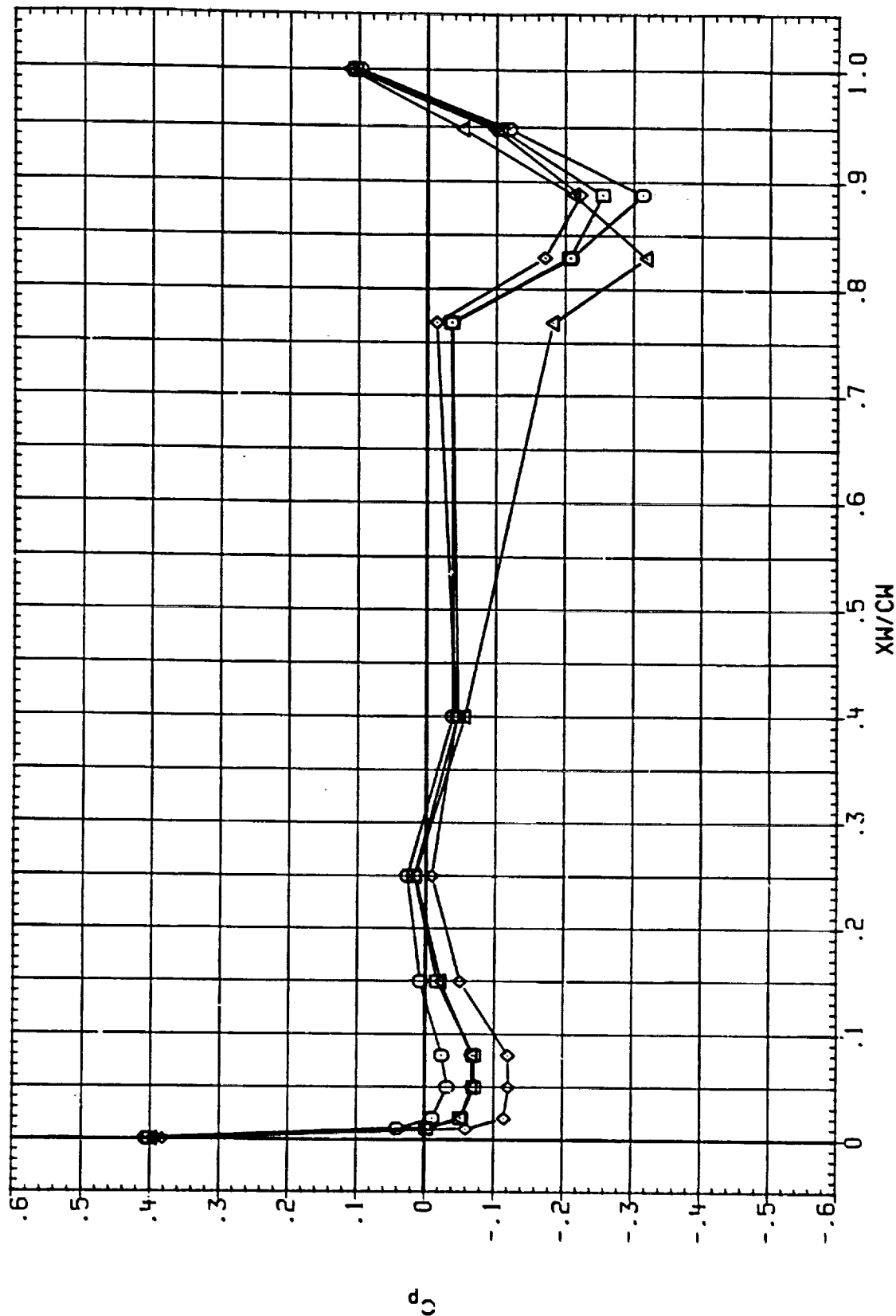


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .811    ALPHA = .000

DATA SET SYMBOL

(RCOL181)  
(RCOL451)  
(RCOL83)

○  
□  
◇

CONFIGURATION DESCRIPTION

IA613A, B/L OT+RSRH+PLUMES S1.2 -L.H. WING LOWER  
IA613A, B/L OT+ASRH+PLUMES S1.2 -L.H. WING LOWER  
IA613A, B/L OT+ASRH+PLUMES S1.2 -L.H. WING LOWER

HAC-1

.950  
.950  
.950

IEABOX

.000  
.000  
180.000

IB-ELV

10.000  
10.000  
10.000

OB-ELV

9.000  
9.000  
9.000

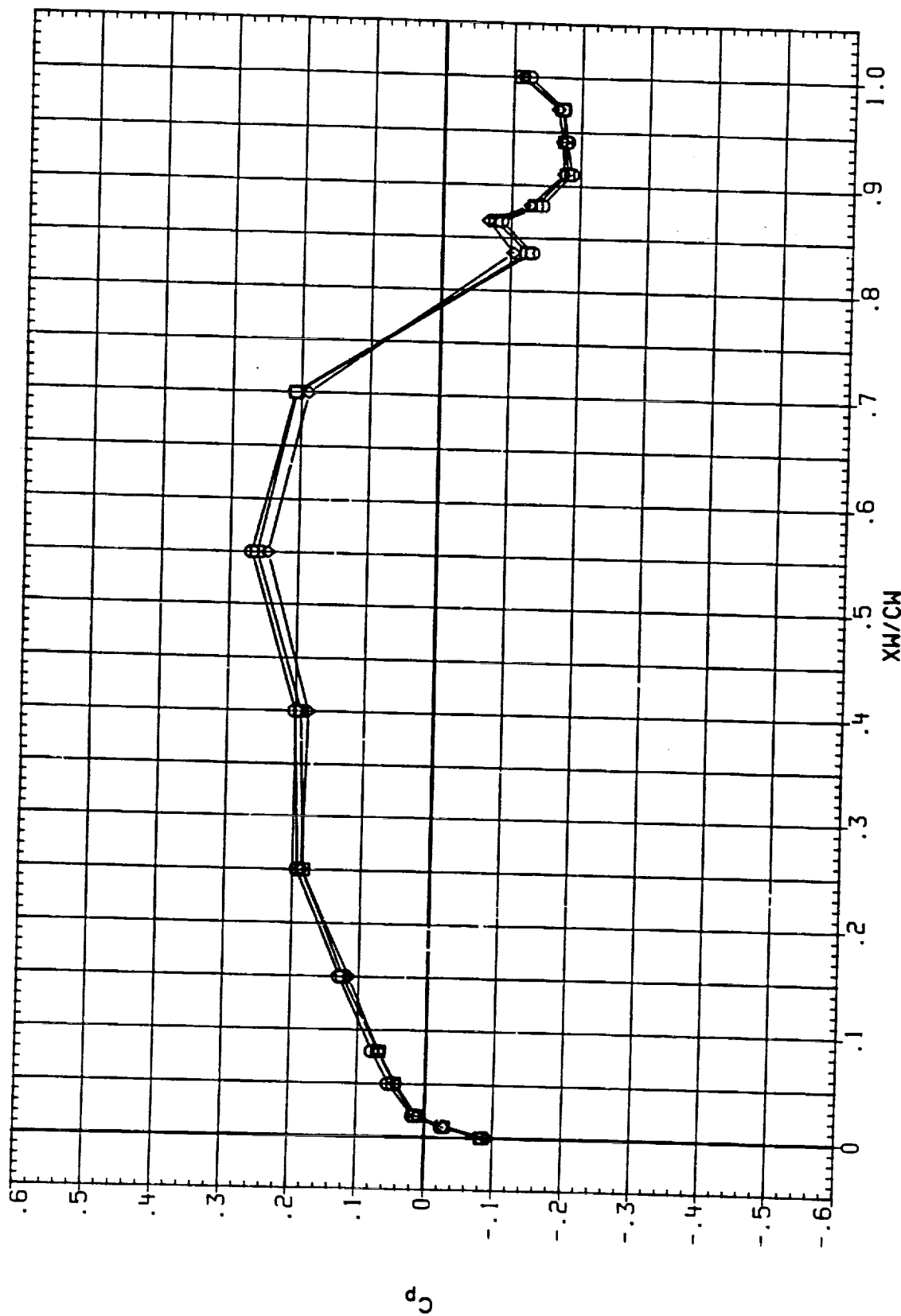


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - LOWER SURFACE  
BETA = .000 ETA = .299 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL18)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOL45)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOL83)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

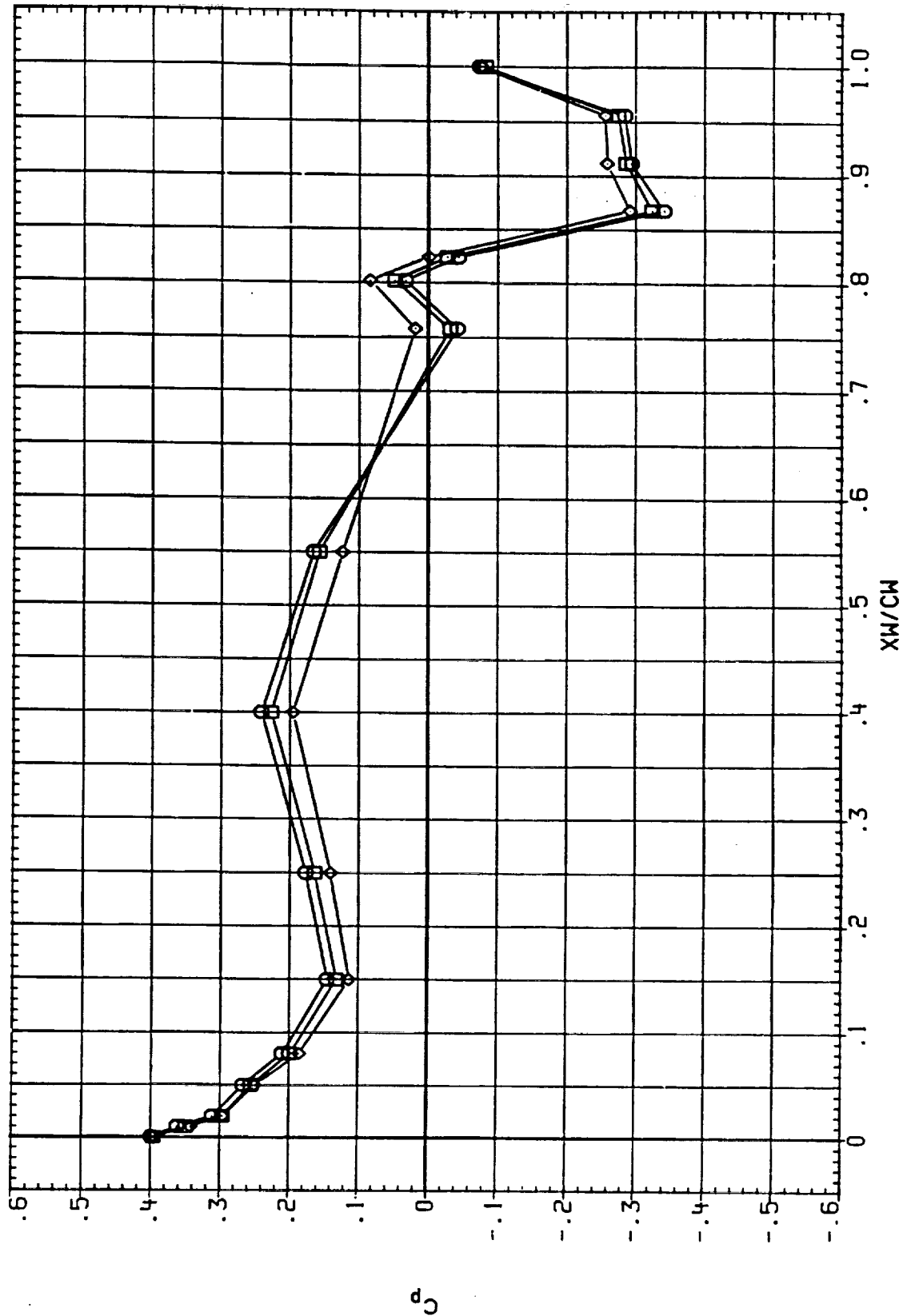


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL181)	○	IA613A, B/L 01-ASRM-PLUMES S1.2	.950	.000	10.000	9.000
(RCOL451)	□	IA613A, B/L 01-ASRM-PLUMES S1.2	.950	.000	10.000	9.000
(RCOL831)	◇	IA613A, B/L 01-ASRM-PLUMES S1.2	.950	180.000	10.000	9.000

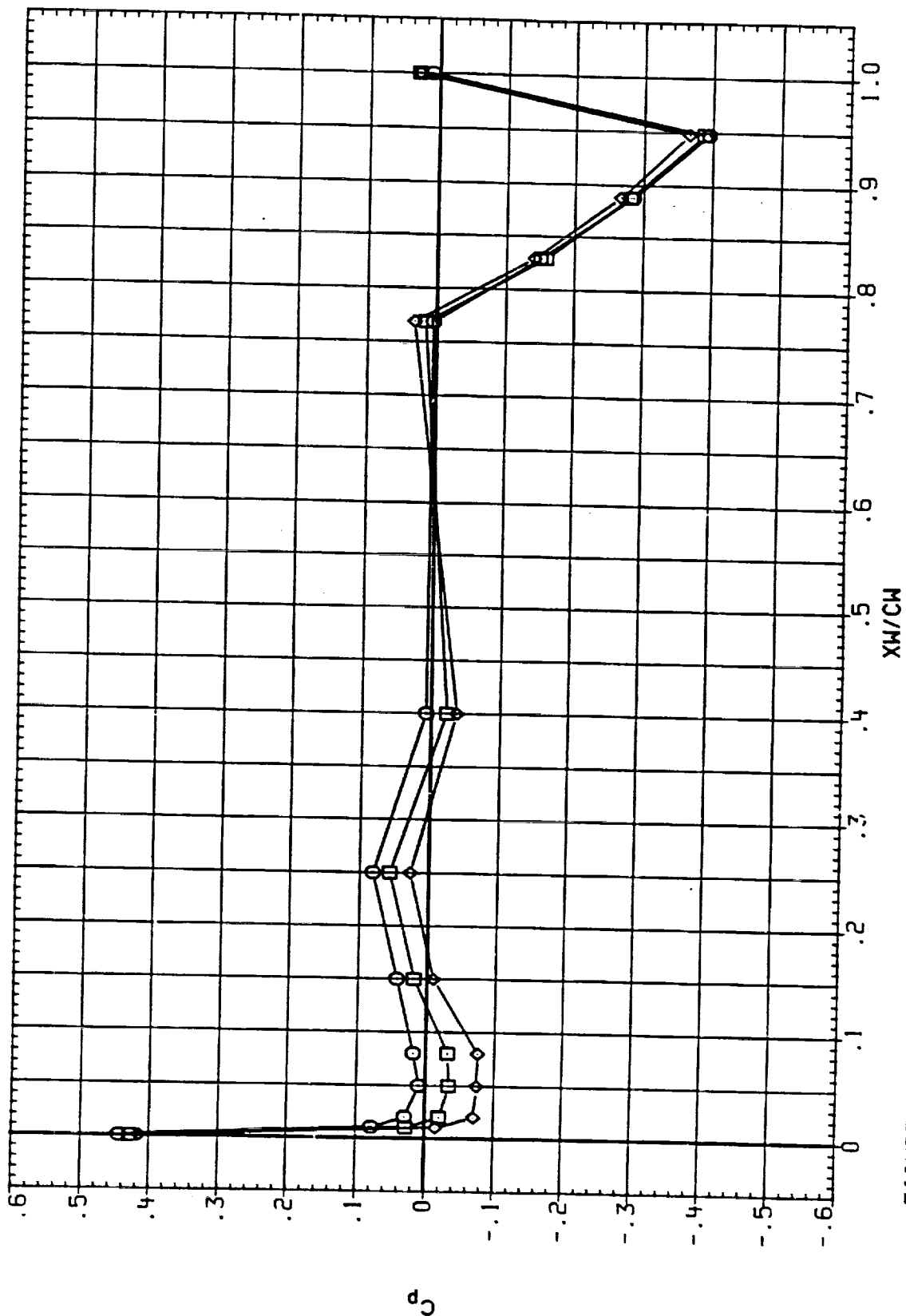


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RCOL19)	○	IA613A.B/L OT.PSRM.PLUNES S1.2	1.050	.000	10.000	9.000
(RCOL46)	○	IA613A.B/L OT.ASRM.PLUNES S1.2	1.050	.000	10.000	9.000
(RCOL84)	◇	IA613A.B/L OT.ASRM.PLUNES S1.2	1.050	180.000	10.000	9.000

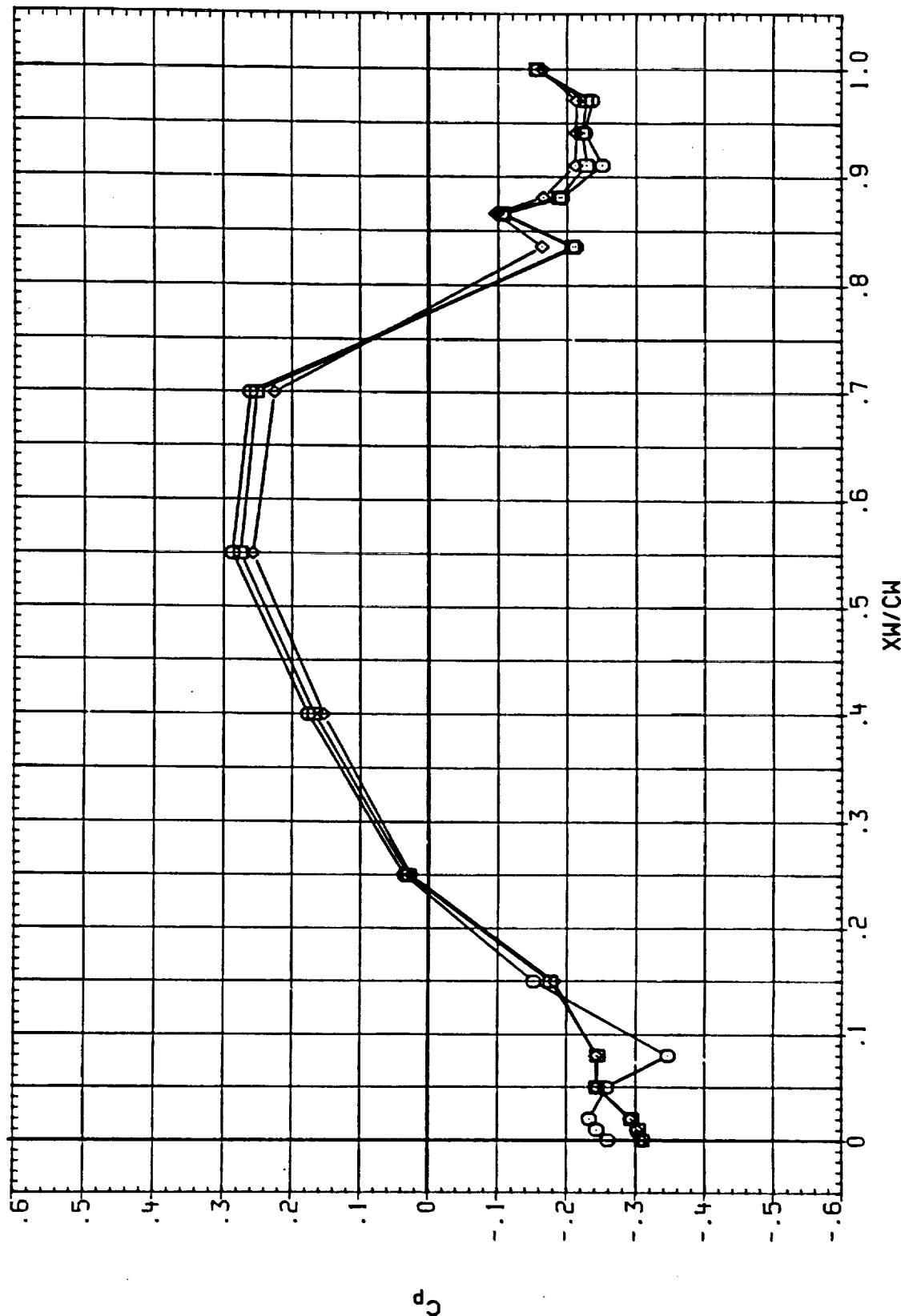


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
IRCOL191	○	IA613A.B/L OT*PSRM*PLUMES SI.2	1.050	.000	10.000	9.000
IRCOL461	□	IA613A.B/L OT*ASRM*PLUMES SI.2	1.050	.000	10.000	9.000
IRCOL841	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	1.050	180.000	10.000	9.000
		-L.H. HING LOWER				
		-L.H. HING LOWER				
		-L.H. HING LOWER				

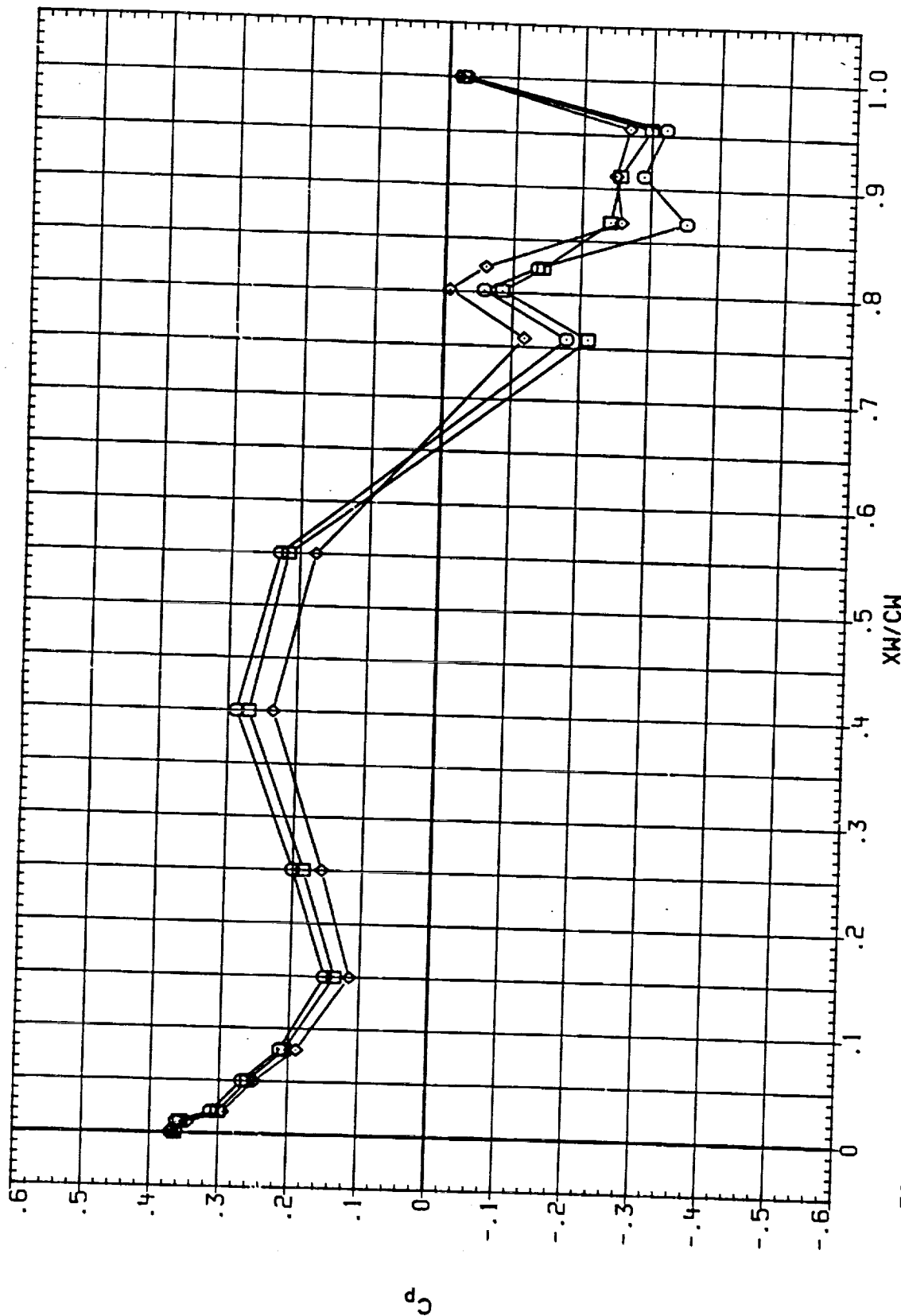


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOL19)	○	IA613A, B/L OT+RSRM+PLUMES S1.2 -L.H. HING LOWER	1.050	.000	10.000	9.000
(RCOL46)	□	IA613A, B/L OT+ASRM+PLUMES S1.2 -L.H. HING LOWER	1.050	.000	10.000	9.000
(RCOL81)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2 -L.H. HING LOWER	1.050	180.000	10.000	9.000

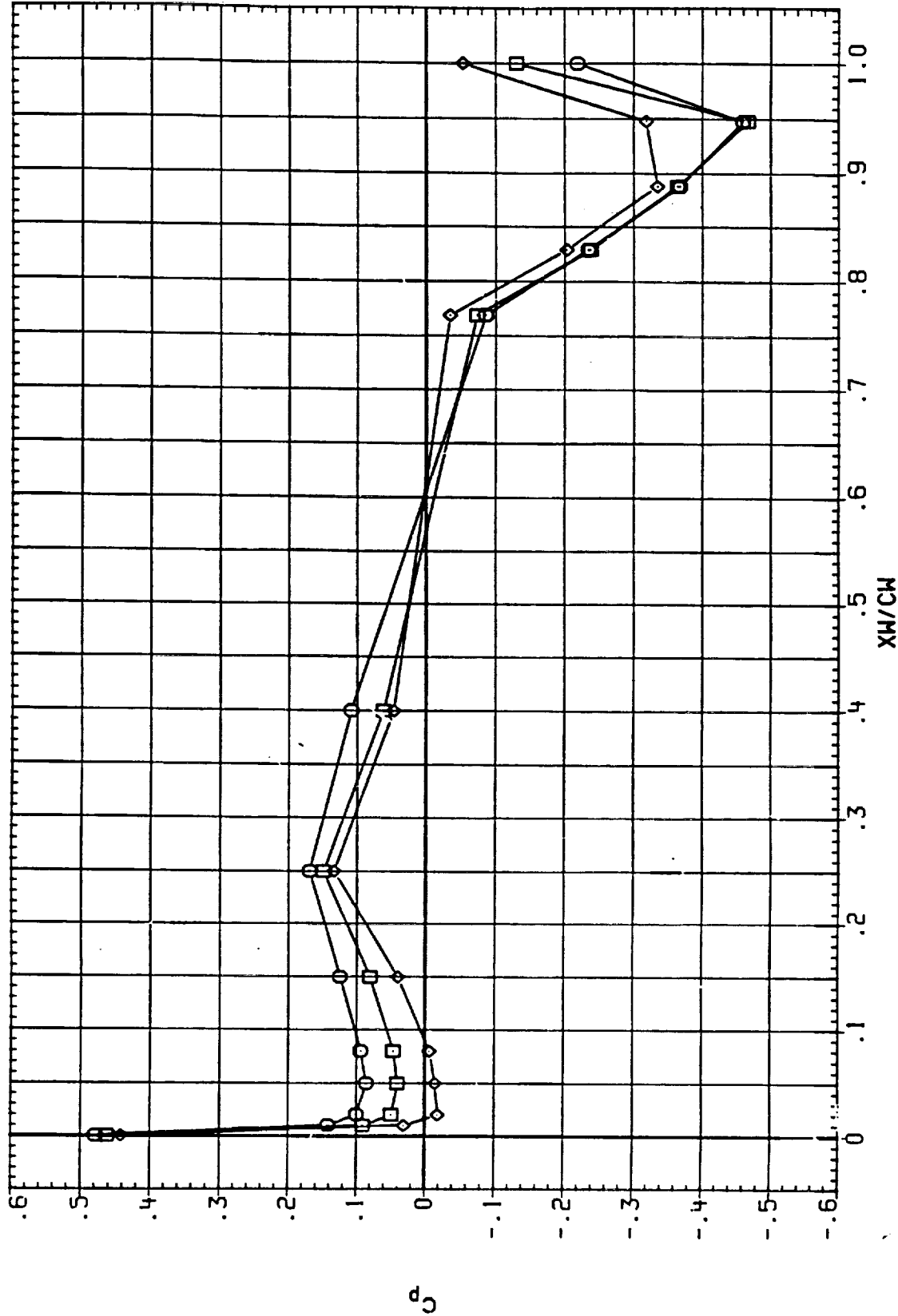


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL20)	○	IA613A, B/L OT+SRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOL47)	□	IA613A, B/L OT+SRM+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOL85)	△	IA613A, B/L OT+SRM+PLUMES SI.2	1.100	180.000	10.000	9.000
(RCOLC3)	△	IA613A, B/L OT+SRM+PLUMES SI.2	1.100	999.000	10.000	5.000

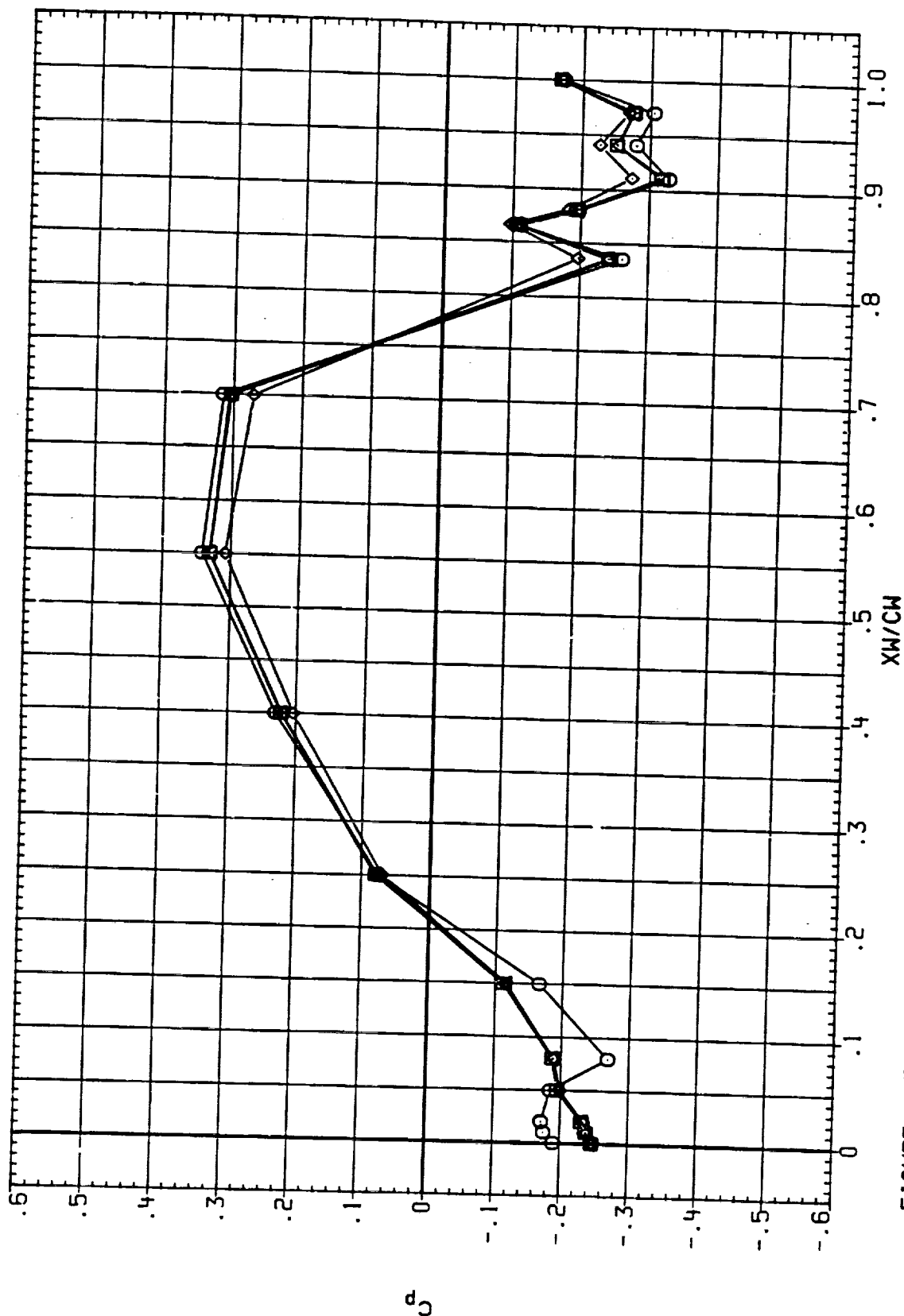


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL20)	○	IA613A,B/L OT+SRM+PLUES S1.2	1.100	.000	10.000	9.000
(RCOL47)	□	IA613A,B/L OT+SRM+PLUES S1.2	1.100	.000	10.000	9.000
(RCOL85)	◇	IA613A,B/L OT+SRM+PLUES S1.2	1.100	180.000	10.000	9.000
(RCOLC3)	△	IA613A,B/L OT+SRM+PLUES S1.2	1.100	999.000	10.000	5.000
		-L.H. WING LOWER				
		-L.H. WING LOWER				
		-L.H. WING LOWER				

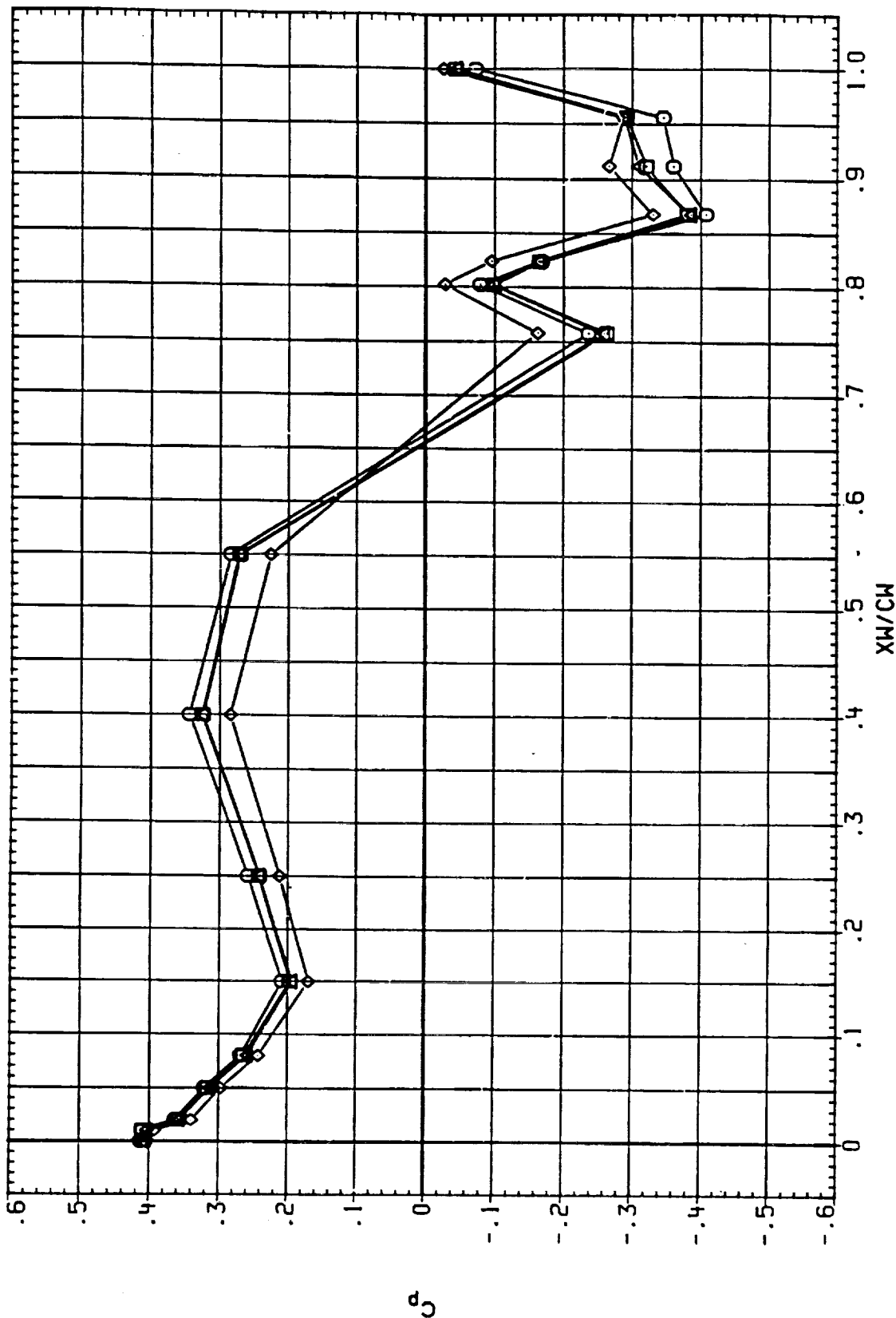


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL20)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOL47)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	1.100	.000	10.000	9.000
(RCOL85)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.100	180.000	10.000	9.000
(RCOLC3)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	1.100	999.000	10.000	5.000

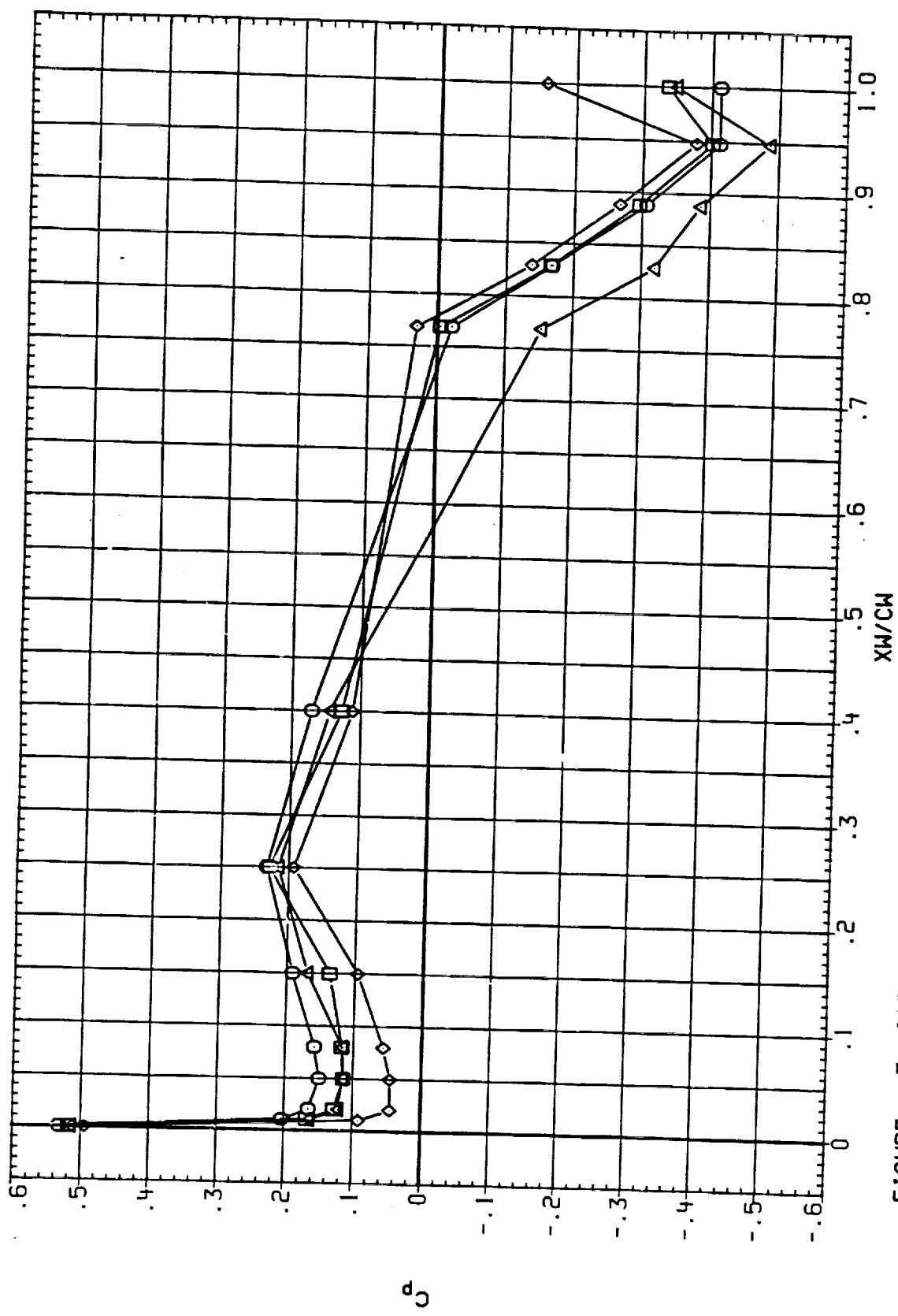


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL21)	○	IA613A.B/L OT-ASRH-PLUMES SI.2	1.150	.000	10.000	9.000
(RCOL48)	□	IA613A.B/L OT-ASRH-PLUMES SI.2	1.150	.000	10.000	9.000
(RCOL86)	◇	IA613A.B/L OT-ASRH-PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOLC4)	△	IA613A.B/L OT-ASRH-PLUMES SI.2	1.150	999.000	10.000	5.000
		-L.H. WING LOWER				
		-L.H. WING LOWER				
		-L.H. WING LOWER				

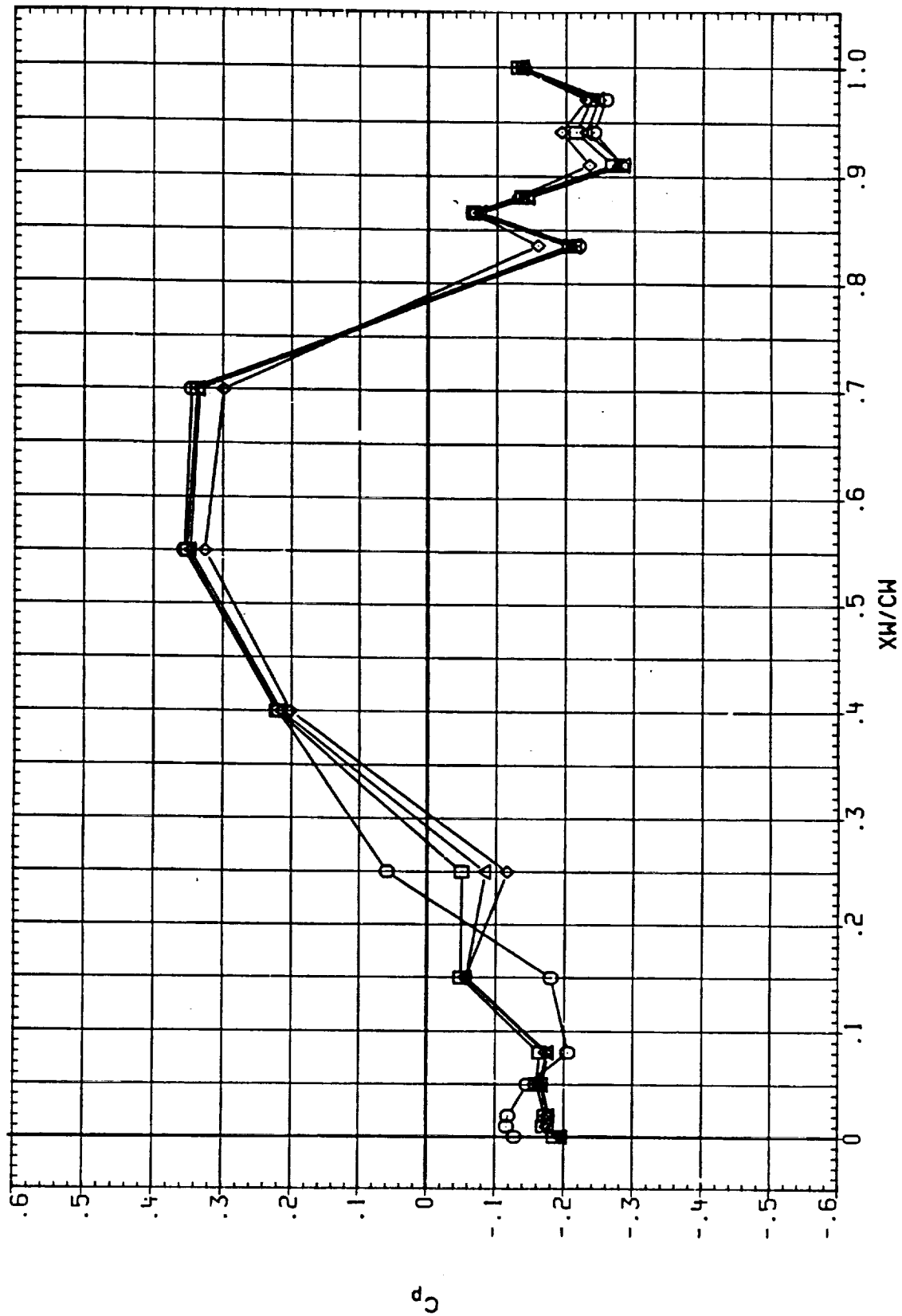


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .299    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL21)	○	IA613A, B/L OT+SRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL48)	□	IA613A, B/L OT+SRM+PLUMES S1.2	1.150	.000	10.000	9.000
(RCOL86)	◇	IA613A, B/L OT+SRM+PLUMES S1.2	1.150	180.000	10.000	9.000
(XCOLC1)	△	IA613A, B/L OT+SRM+PLUMES S1.2	1.150	999.000	10.000	5.000

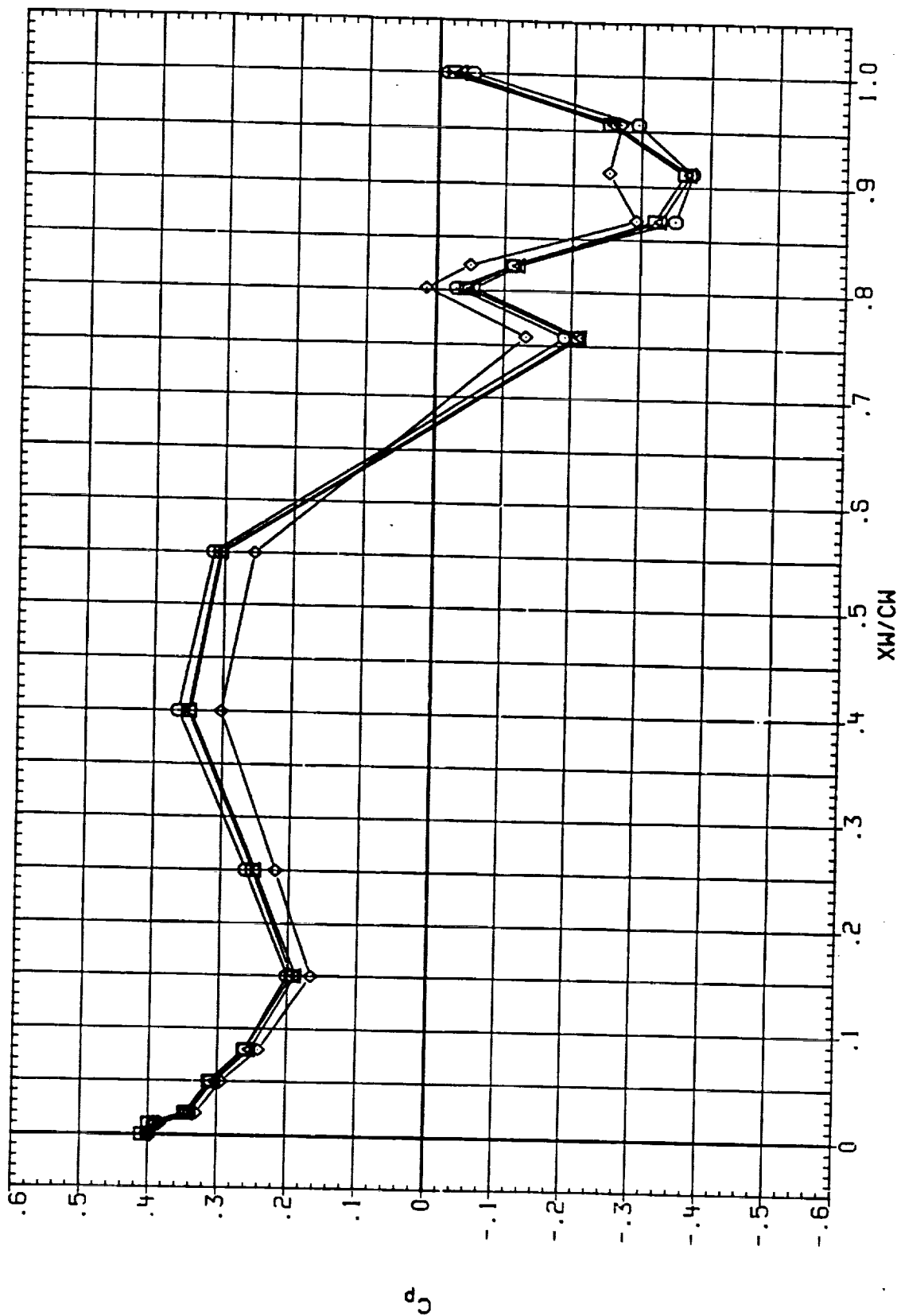


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL21)	○	IA613A.B/L OT+RSRM+PLUHS S1.2	1.150	.000	10.000	9.000
(RCOL48)	□	IA613A.B/L OT+ASRM+PLUHS S1.2	1.150	.000	10.000	9.000
(RCOL86)	△	IA613A.B/L OT+ASRM+PLUHS S1.2	1.150	180.000	10.000	9.000
(XCOLC4)	◇	IA613A.B/L OT+ASRM+PLUHS S1.2	1.150	999.000	10.000	5.000

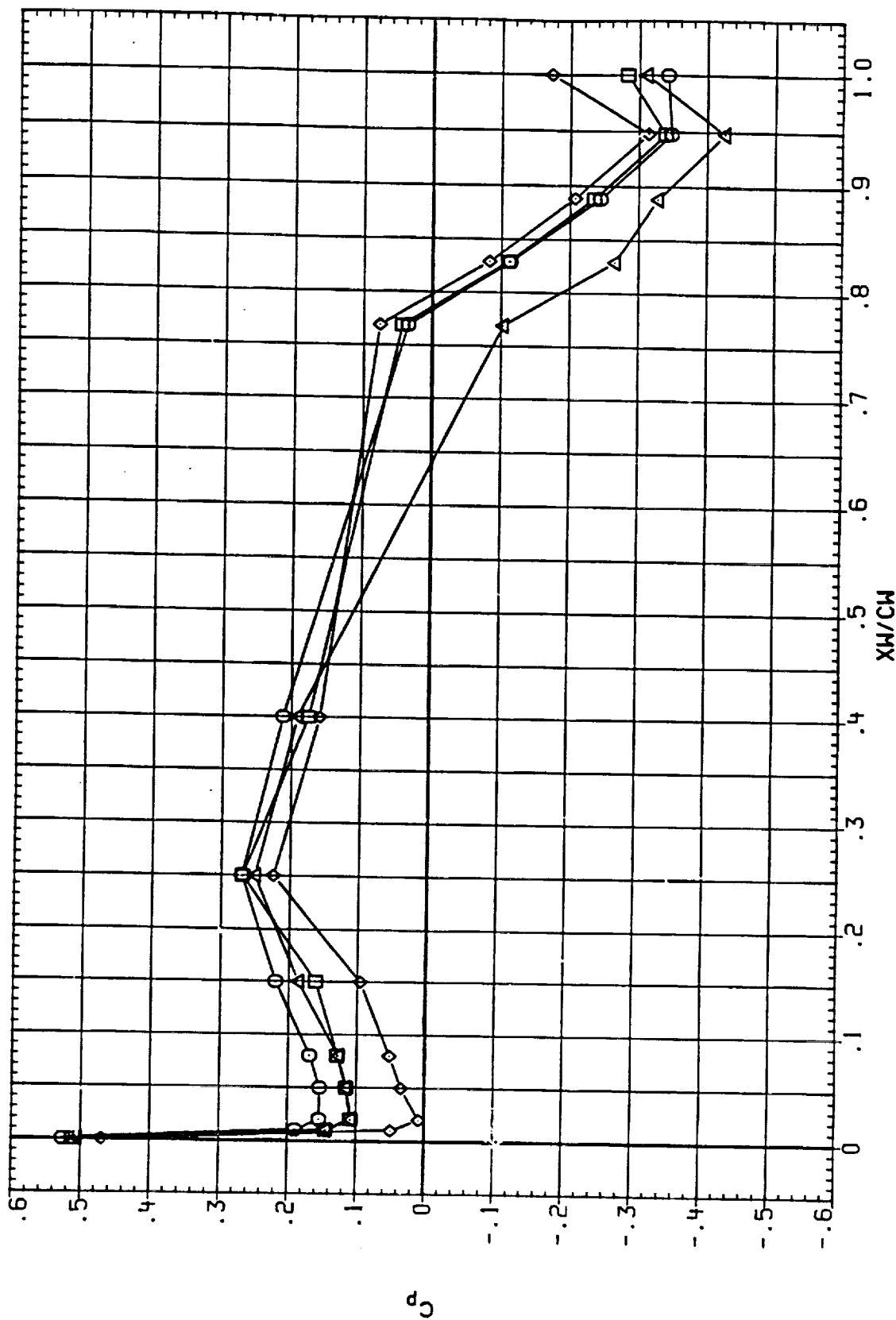


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL22)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOL49)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	.000	10.000	9.000
(RCOL87)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	180.000	10.000	9.000
(RCOLC5)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	1.250	999.000	10.000	5.000
		-L.H. HING LOWER				
		-L.H. HING LOWER				
		-L.H. HING LOWER				

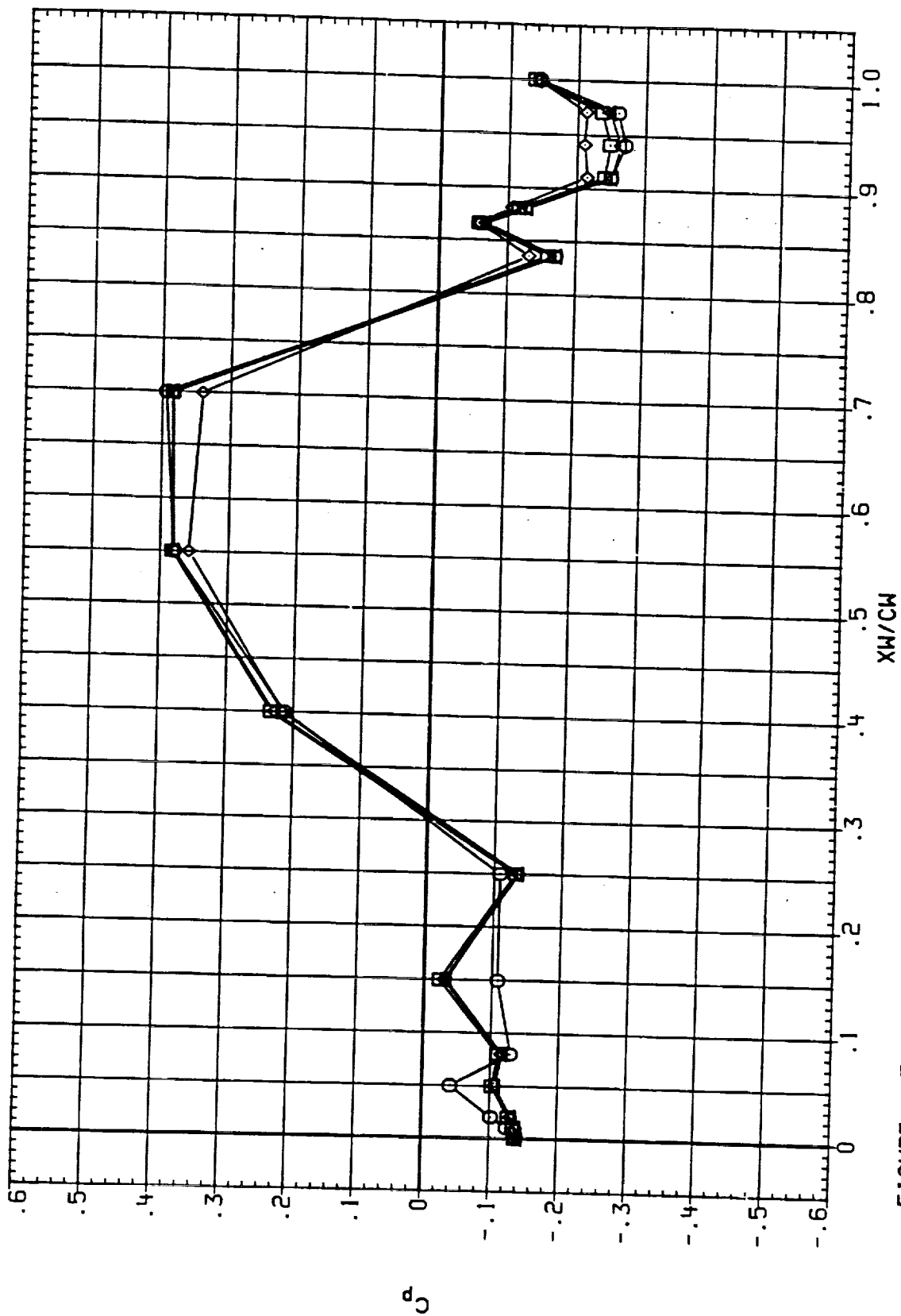


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOL22)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL49)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOL87)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOLC5)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

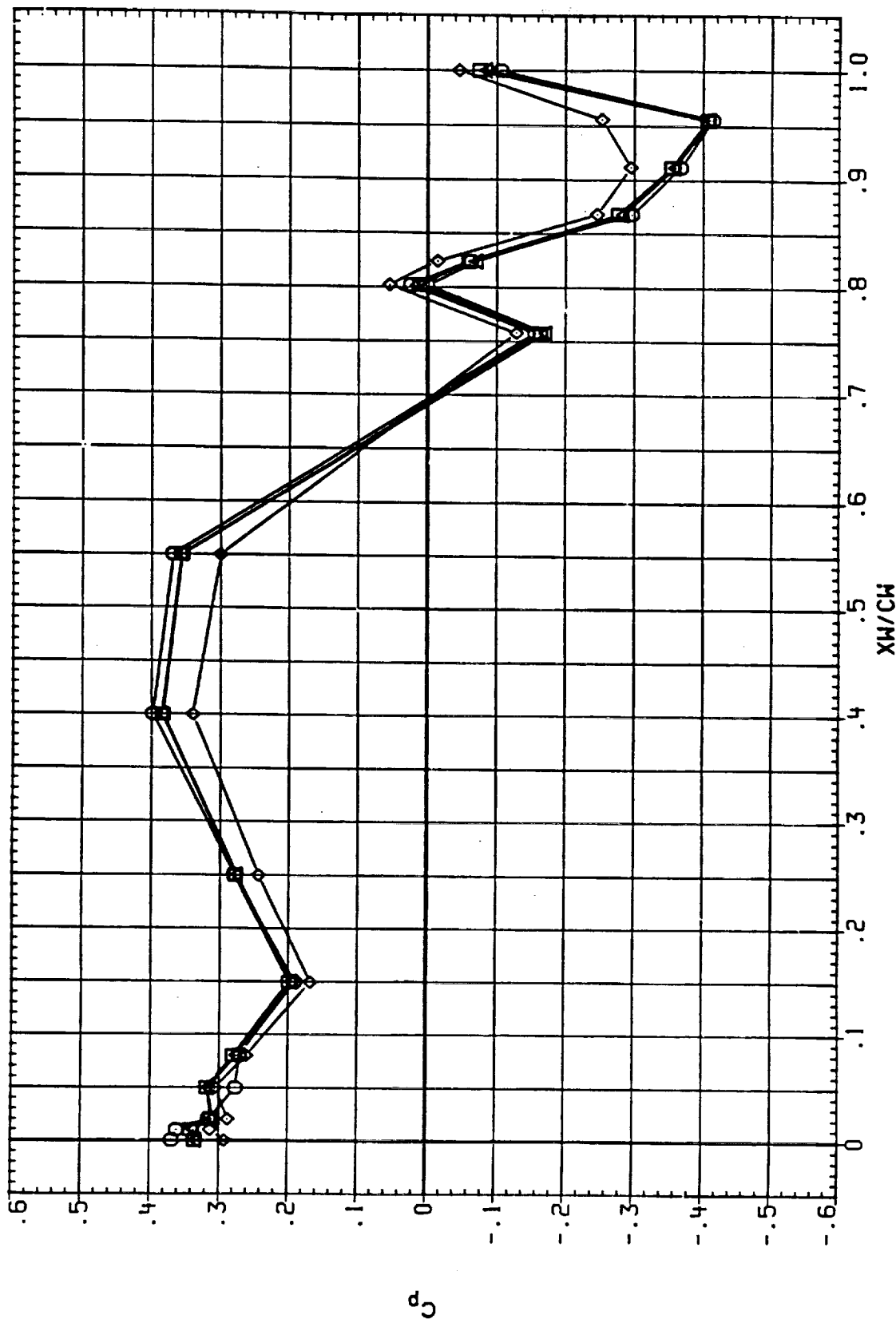


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - LOWER SURFACE  
BETA = .000 ETA = .427 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCOL221)  $\square$  IA613A-B/L OT-ASRM-PLUMES SI.2  
 (RCOL49)  $\diamond$  IA613A-B/L OT-ASRM-PLUMES SI.2  
 (RCOL87)  $\square$  IA613A-B/L OT-ASRM-PLUMES SI.2  
 (RCOLC5)  $\triangle$  IA613A-B/L OT-ASRM-PLUMES SI.2

-L.H. WING LOWER  
 -L.H. WING LOWER  
 -L.H. WING LOWER  
 -L.H. WING LOWER

MACH IEABOX IB-ELV OB-ELV  
 1.250 .000 10.000 9.000  
 1.250 .000 10.000 9.000  
 1.250 180.000 10.000 9.000  
 1.250 999.000 10.000 5.000

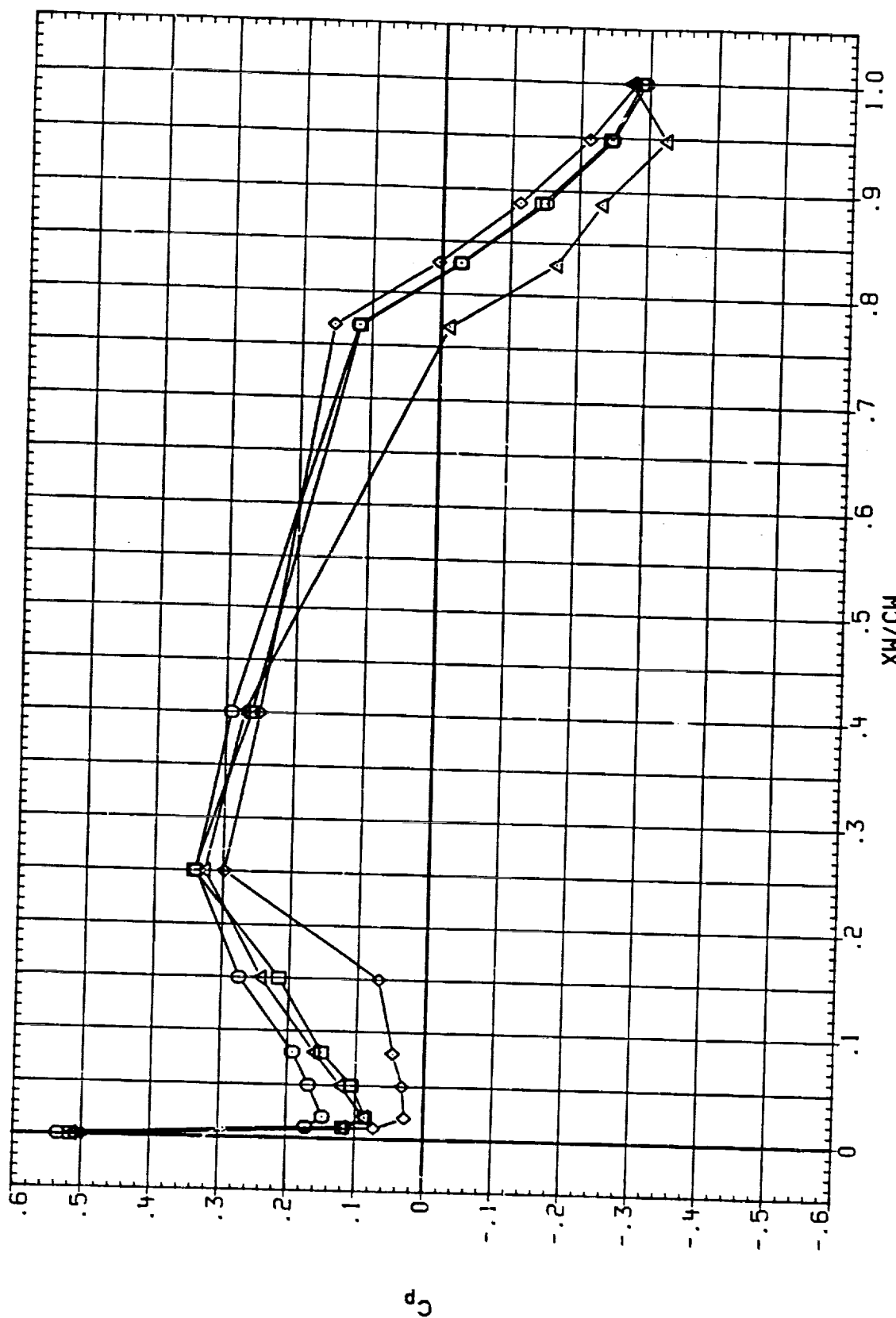


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH6)	□	IA613A.B/L 01*ASRH*PLUMES S1.2	1.300	.000	10.000	9.000
(RCOL54)	□	IA613A.B/L 01*ASRH*PLUMES S1.3	1.300	.000	10.000	5.000
(RCOL69)	◇	IA613A.B/L 01*ASRH*PLUMES S1.3	1.300	180.000	10.000	5.000
(RCOLC7)	△	IA613A.B/L 01*ASRH*PLUMES S1.3	1.300	993.000	10.000	5.000

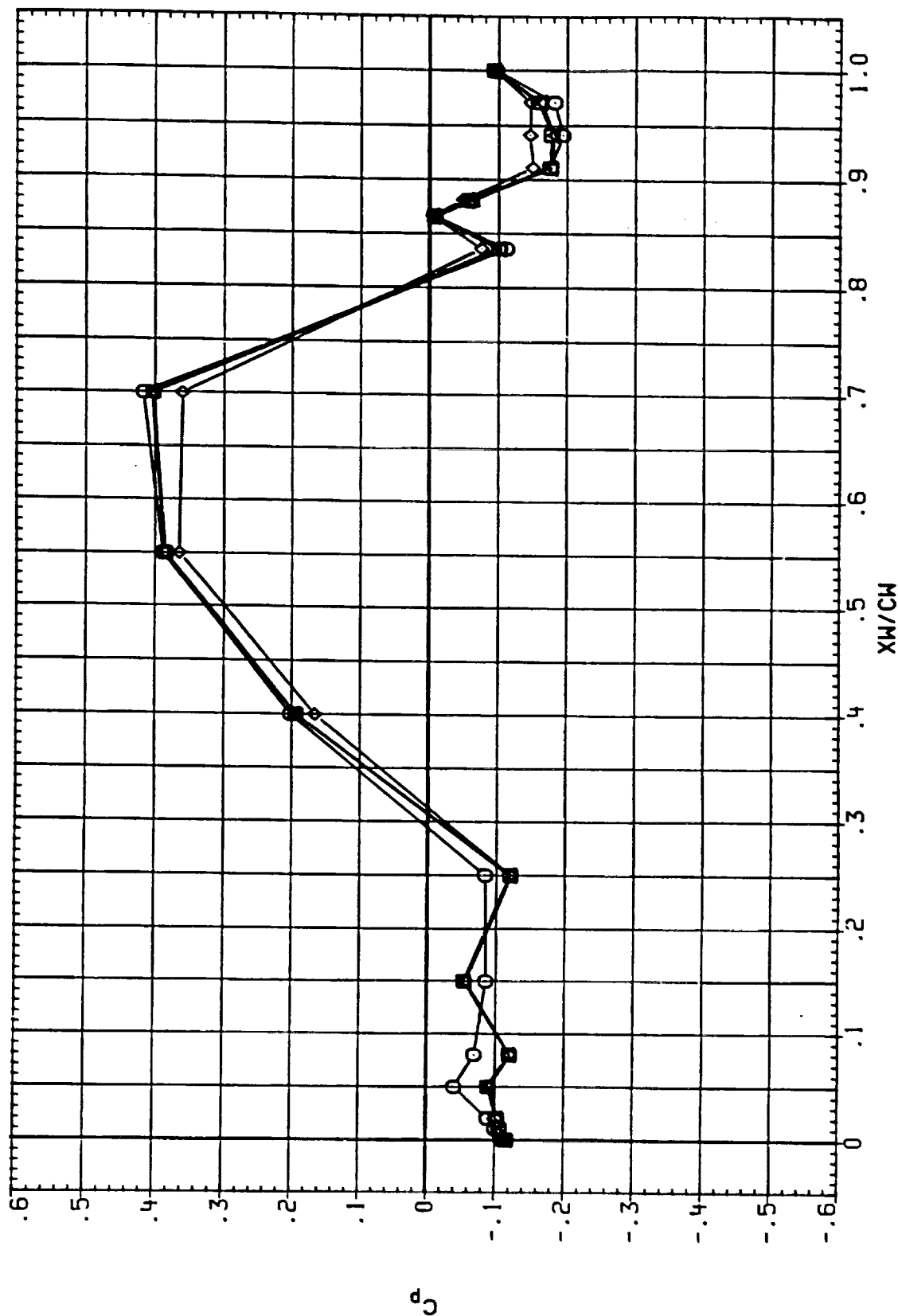


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    ETA = .299    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	CB-ELV
(PCOL46)	□	IA613A-B/L OT-PSRM-PLUMES SI.2	1.300	.000	10.000	9.000
(PCOL54)	◇	IA613A-B/L OT-PSRM-PLUMES SI.3	1.300	.000	10.000	5.000
(PCOL89)	◇	IA613A-B/L OT-PSRM-PLUMES SI.3	1.300	180.000	10.000	5.000
(PCOL71)	△	IA613A-B/L OT-PSRM-PLUMES SI.3	1.300	999.000	10.000	5.000

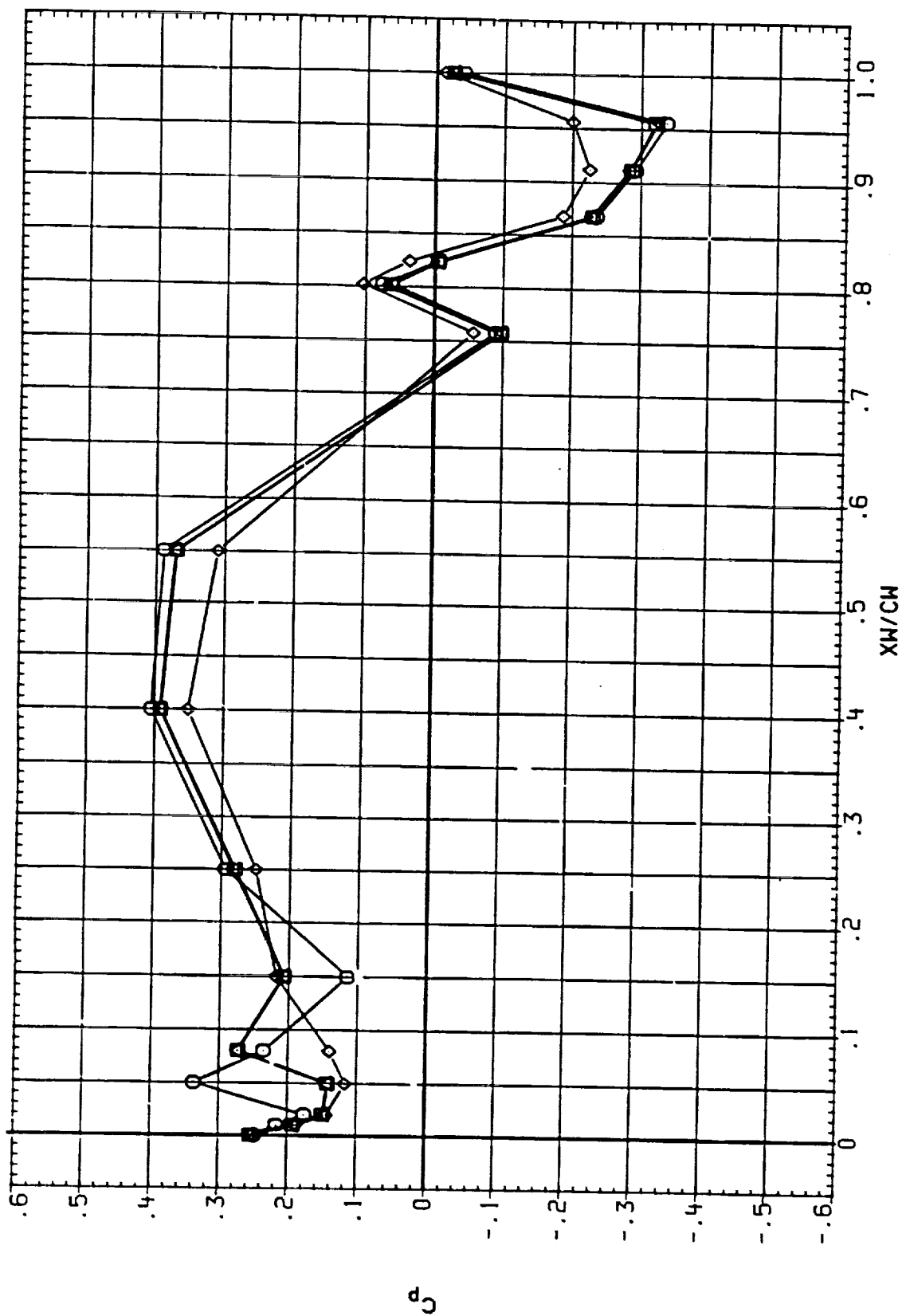


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH6)	○	IA613A B/L OT+ASRH+PLUES SI.2	1.300	.000	10.000	9.000
(RCOL54)	□	IA613A B/L OT+ASRH+PLUES SI.3	1.300	.000	10.000	5.000
(RCOL89)	◇	IA613A B/L OT+ASRH+PLUES SI.3	1.300	180.000	10.000	5.000
(RCOLC7)	△	IA613A B/L OT+ASRH+PLUES SI.3	1.300	999.000	10.000	5.000
		-L.H. HING LOWER				
		-L.H. HING LOWER				
		-L.H. HING LOWER				

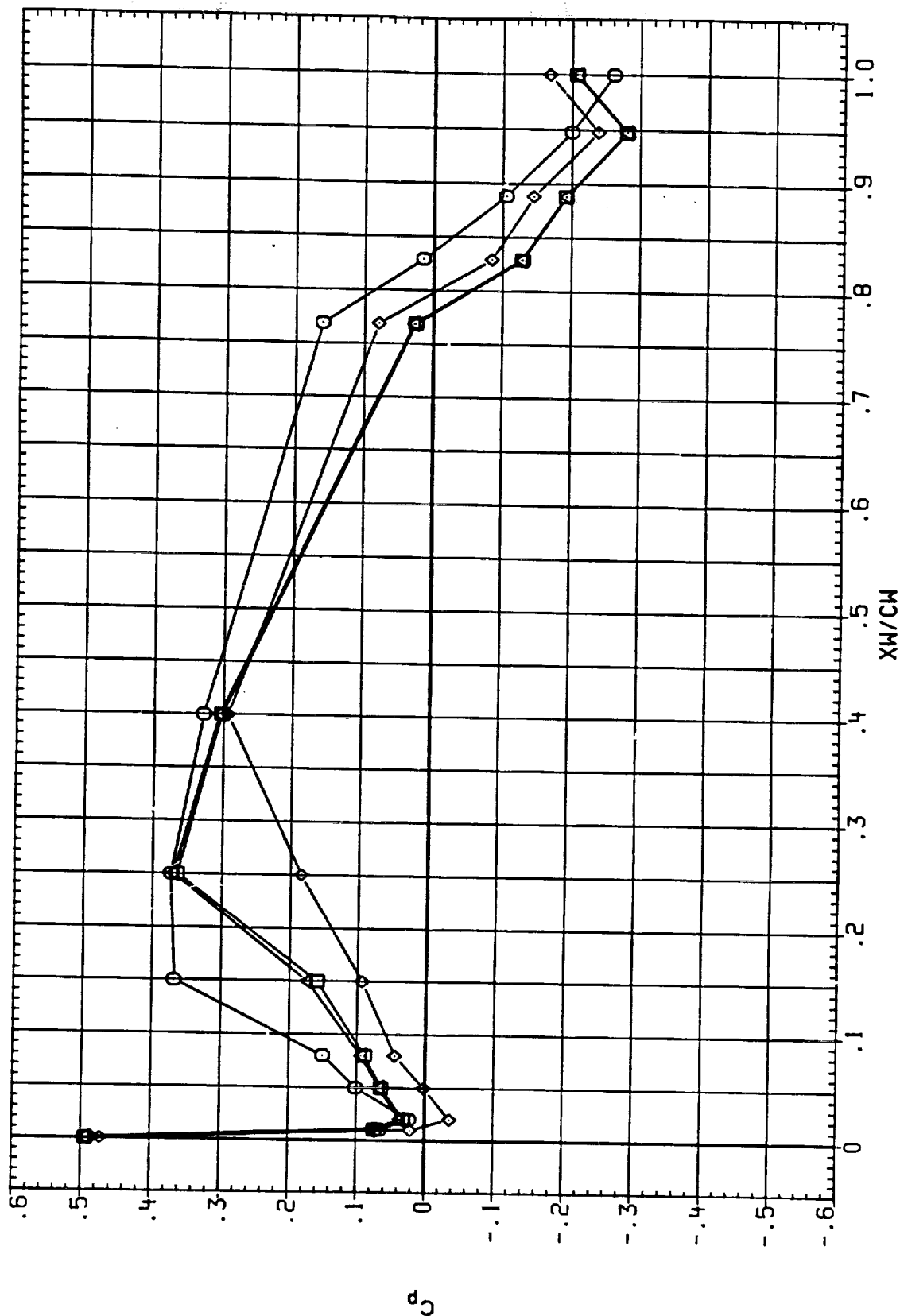


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET SYMBOL

(RCOLH7)  
(RCOL55)  
(RCOL90)  
(RCOLC8)

CONFIGURATION DESCRIPTION

IA613A.B/L OT\*RSRH\*PLUMES SI.2  
IA613A.B/L OT\*ASRH\*PLUMES SI.3  
IA613A.B/L OT\*ASRH\*PLUMES SI.3  
IA613A.B/L OT\*ASRH\*PLUMES SI.3

-L.H. HING LOWER  
-L.H. HING LOWER  
-L.H. HING LOWER  
-L.H. HING LOWER

MACH

1.350  
1.350  
1.350  
1.350

IEABOX

.000  
.000  
180.000  
999.000

IB-ELV

10.000  
10.000  
10.000  
10.000

OB-ELV

9.000  
5.000  
5.000  
5.000

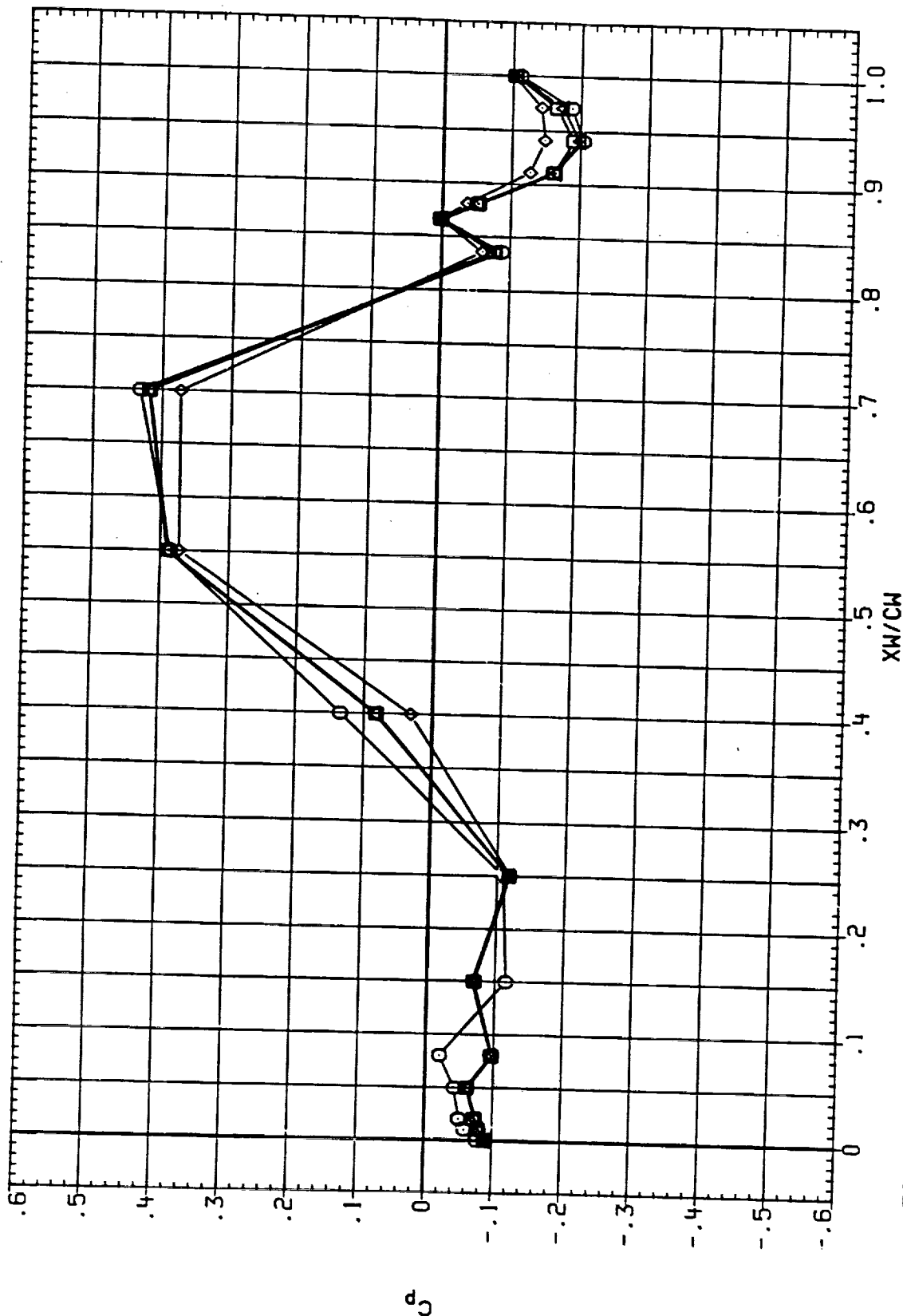


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - LOWER SURFACE  
BETA = .000 ETA = .299 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH7)	○	IA613A.B/L OT+ASRH+PLUES SI.2	1.350	.000	10.000	9.000
(RCOL55)	◇	IA613A.B/L OT+ASRH+PLUES SI.3	1.350	.000	10.000	5.000
(RCOL90)	◇	IA613A.B/L OT+ASRH+PLUES SI.3	1.350	180.000	10.000	5.000
(RCOLC8)	△	IA613A.B/L OT+ASRH+PLUES SI.3	1.350	999.000	10.000	5.000

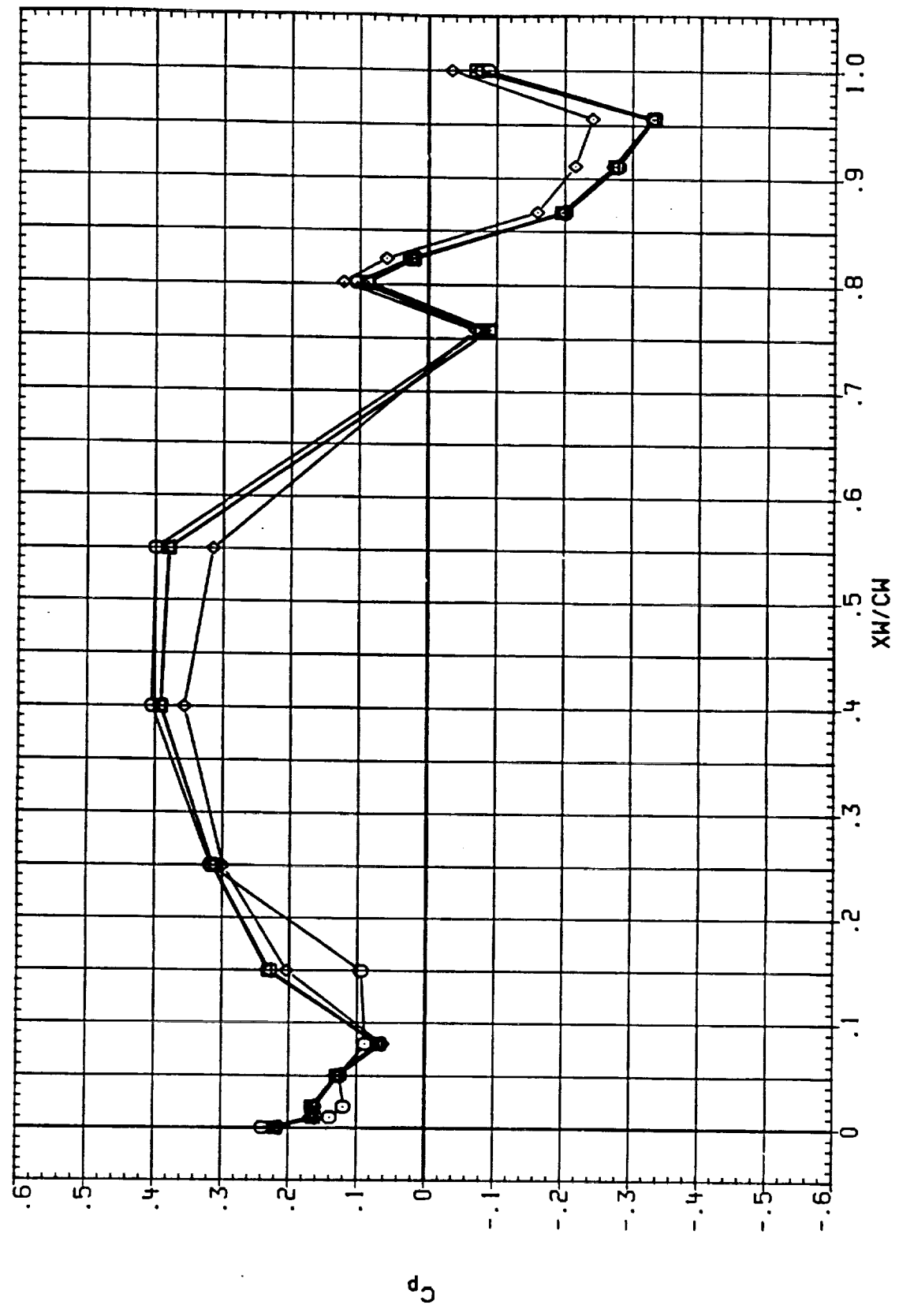


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH7)	○	IA613A.8/L OT+RSRM+PLUMES SI.2	1.350	.000	10.000	9.000
(RCOL55)	□	IA613A.8/L OT+ASRM+PLUMES SI.3	1.350	.000	10.000	5.000
(RCOL90)	◇	IA613A.8/L OT+ASRM+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOLC8)	△	IA613A.8/L OT+ASRM+PLUMES SI.3	1.350	999.000	10.000	5.000

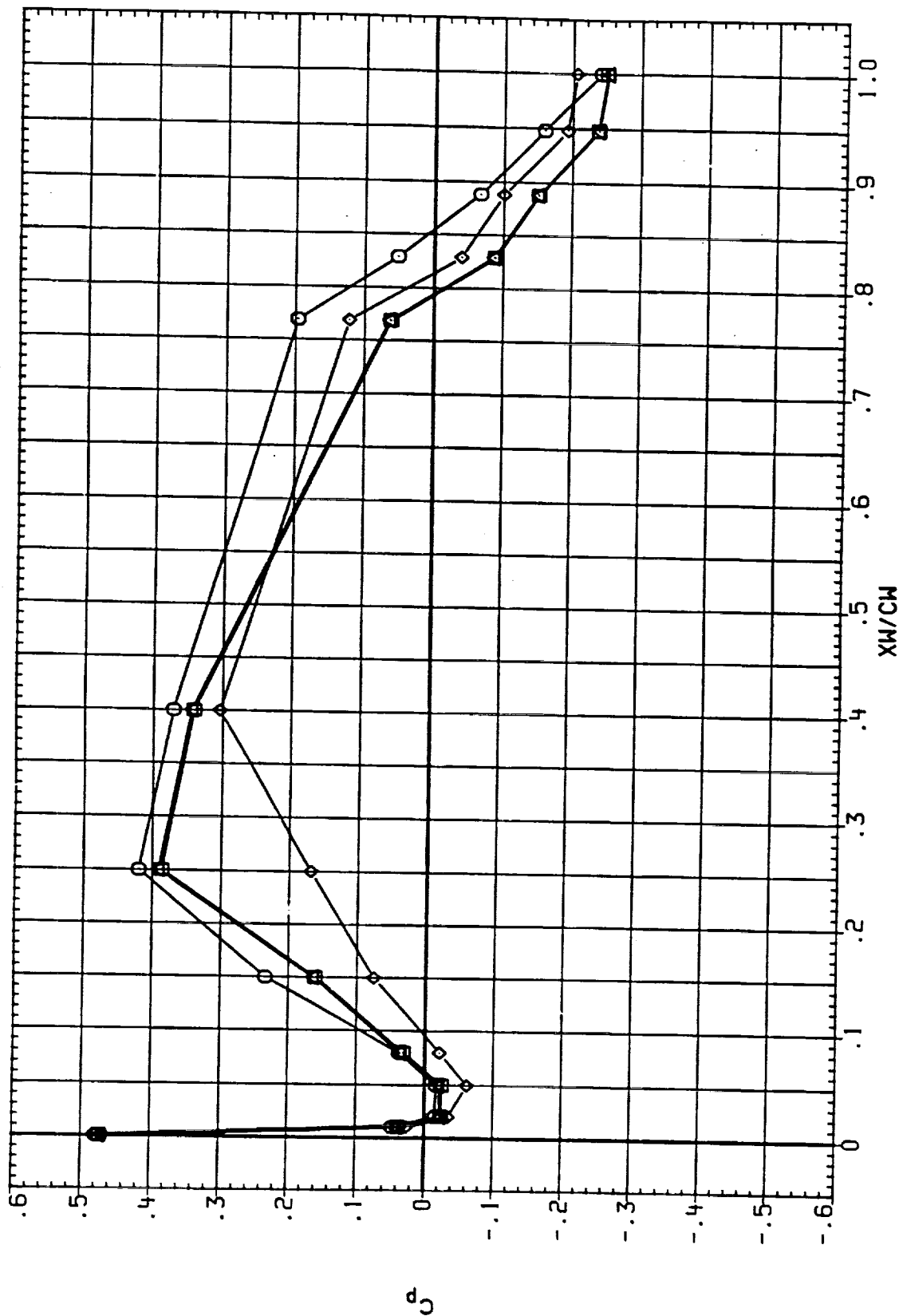


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH8)	○	IA613A.B/L OT+RSR+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOL56)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOL91)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOLC9)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.400	999.000	10.000	5.000
		-L.H. WING LOWER				
		-L.H. WING LOWER				
		-L.H. WING LOWER				

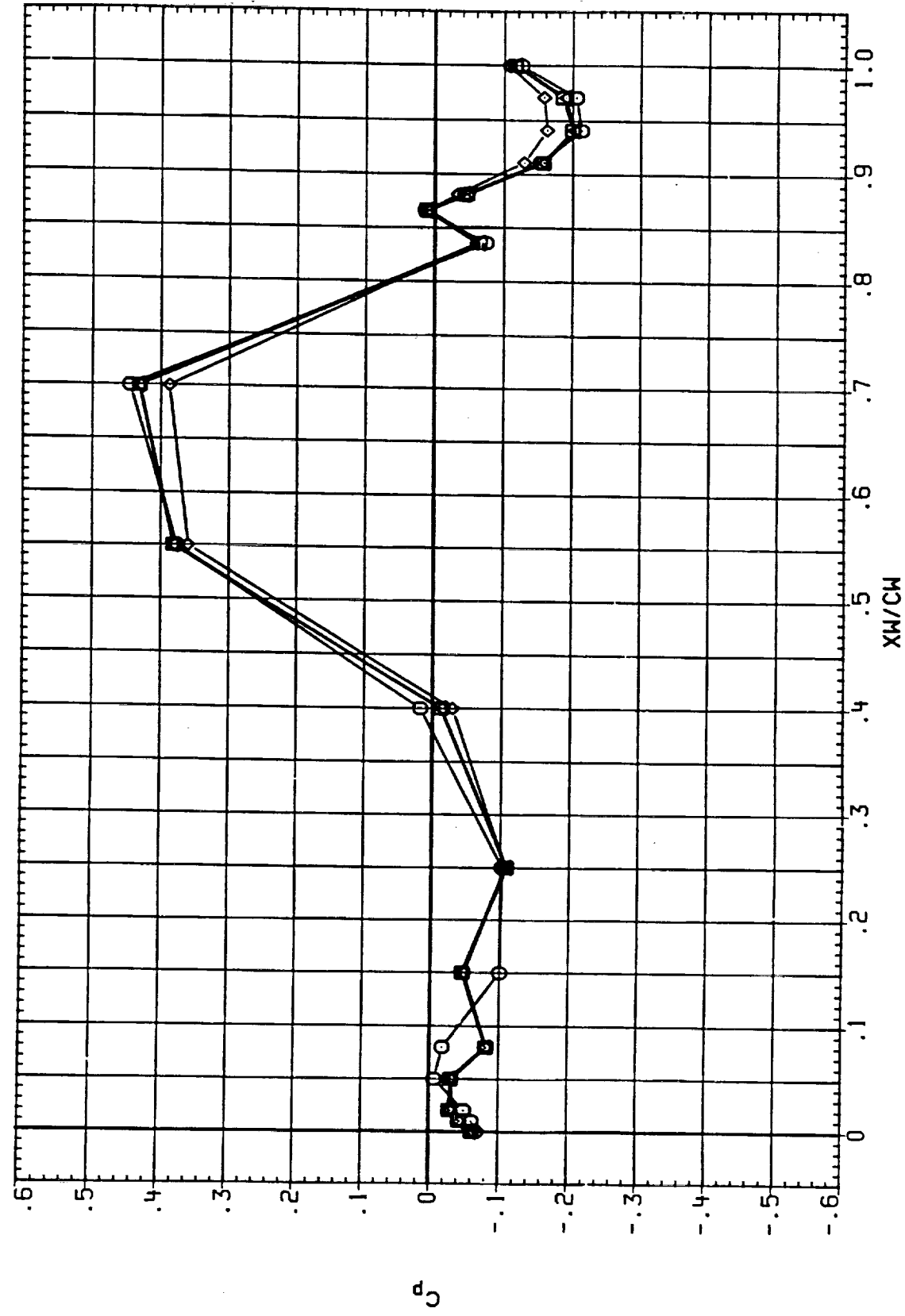


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .299    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLHB)	○	IA613A.B/L OT+ASRN+PLUNES SI.2	1.400	.000	10.000	9.000
(RCOL56)	□	IA613A.B/L OT+ASRN+PLUNES SI.3	1.400	.000	10.000	5.000
(RCOL91)	△	IA613A.B/L OT+ASRN+PLUNES SI.3	1.400	180.000	10.000	5.000
(RCOLC9)	◇	IA613A.B/L OT+ASRN+PLUNES SI.3	1.400	999.000	10.000	5.000

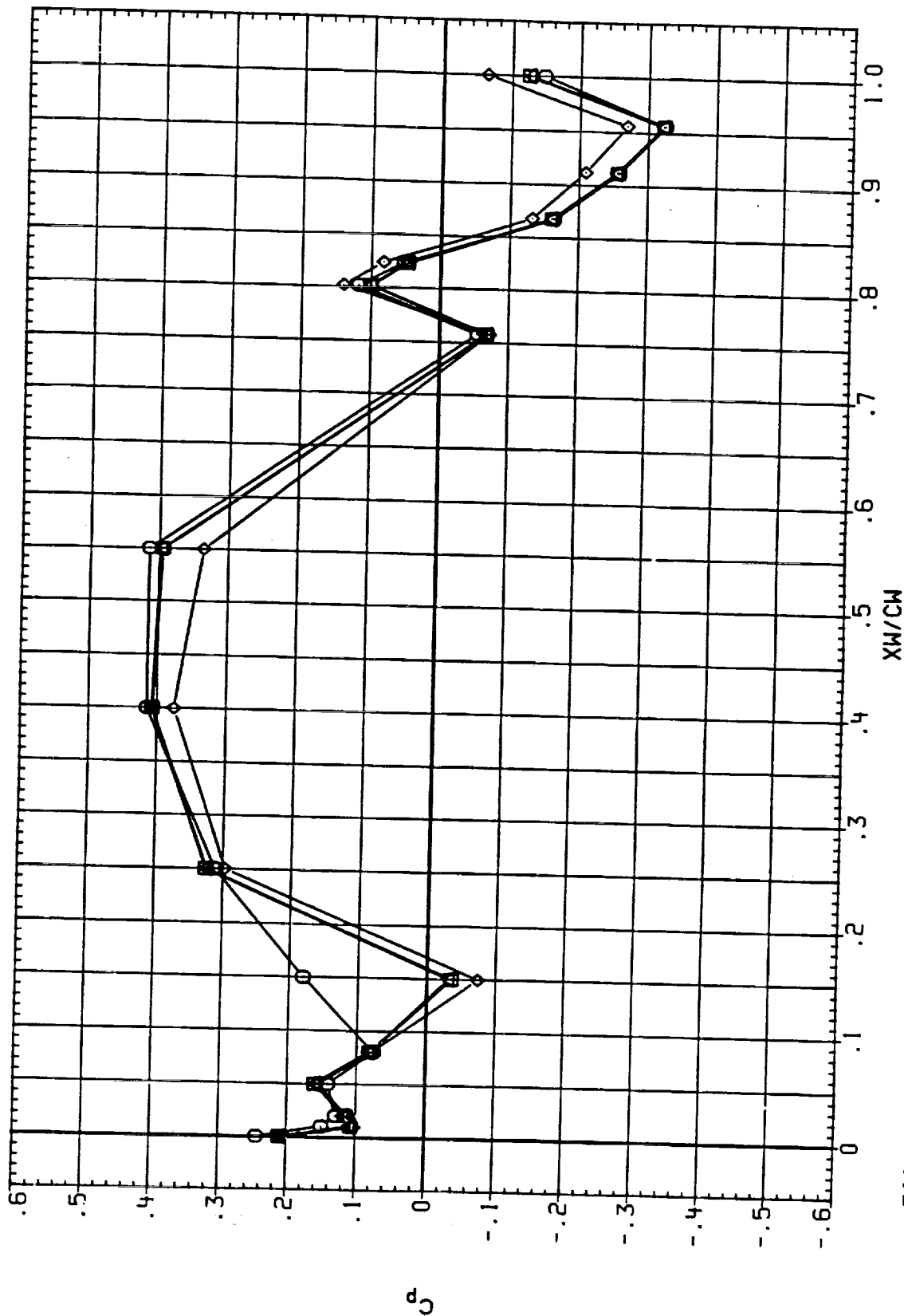


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .427 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH8)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOL56)	◇	IA613A.B/L OT+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOL91)	◇	IA613A.B/L OT+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOLC9)	△	IA613A.B/L OT+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000
		-L.H. HING LOWER				
		-L.H. HING LOWER				
		-L.H. HING LOWER				

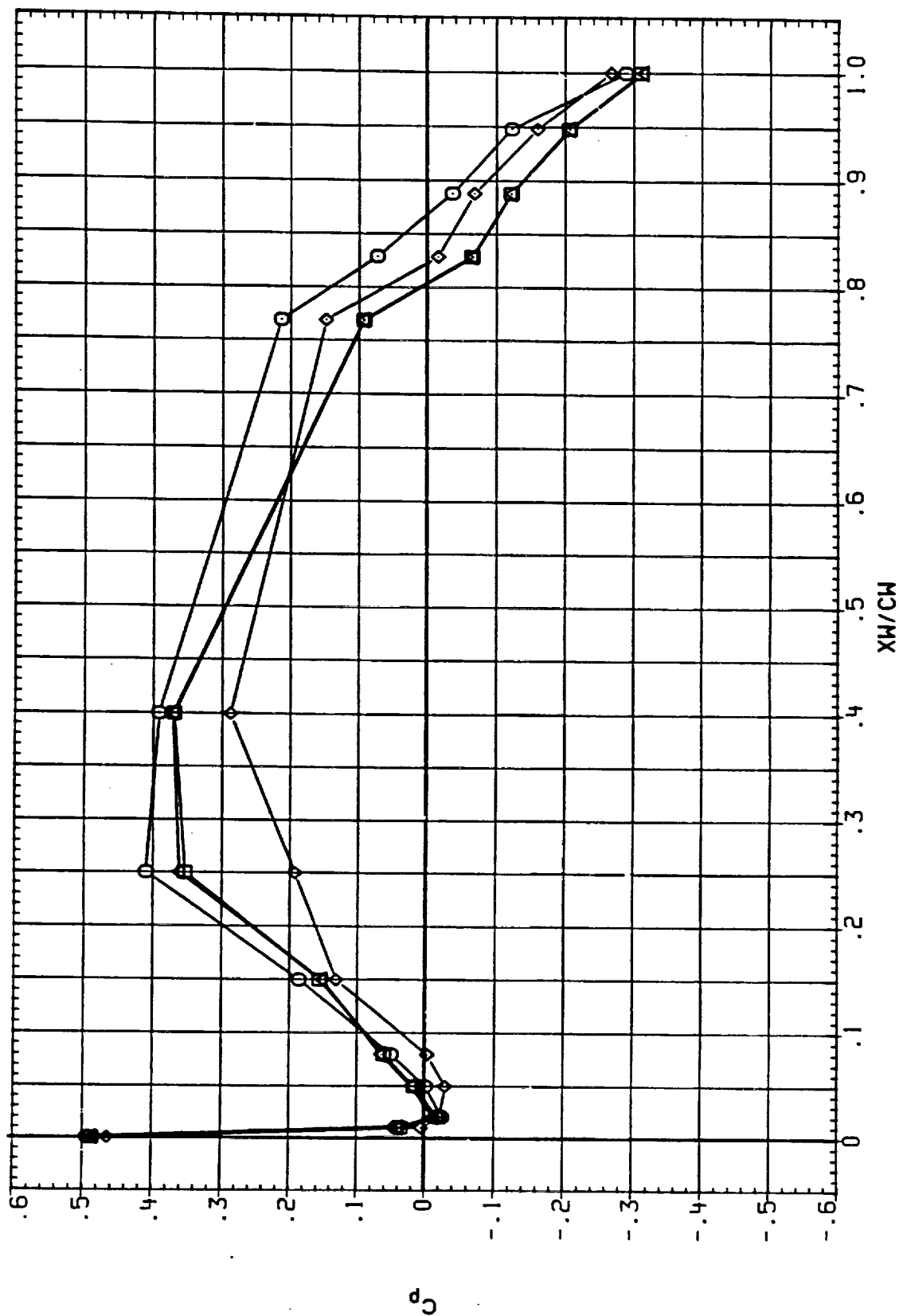


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
ORBITER WING - LOWER SURFACE  
BETA = .000 ETA = .811 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH9)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.550	.000	10.000	9.000
(RCOL57)	□	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	.000	10.000	5.000
(RCOL92)	◇	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOL00)	△	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	999.000	10.000	5.000

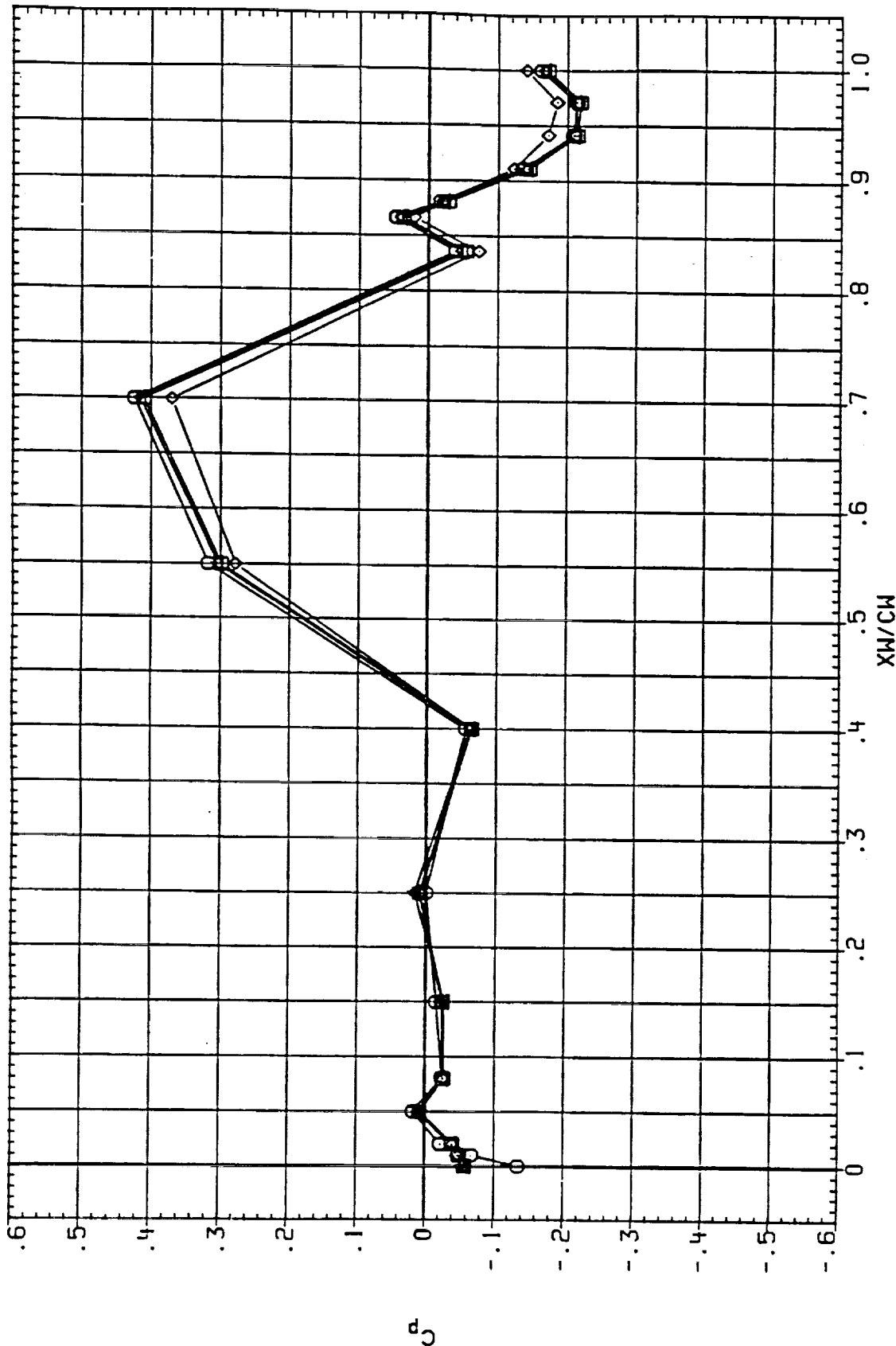


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000 ETA = .299 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOLH9)	○	IA613A, B/L 01*ASRH*PLUHES SI,2	1.550	.000	10.000	9.000
(RCOL57)	□	IA613A, B/L 01*ASRH*PLUHES SI,3	1.550	.000	10.000	5.000
(RCOL92)	◇	IA613A, B/L 01*ASRH*PLUHES SI,3	1.550	180.000	10.000	5.000
(RCOL00)	△	IA613A, B/L 01*ASRH*PLUHES SI,3	1.550	999.000	10.000	5.000

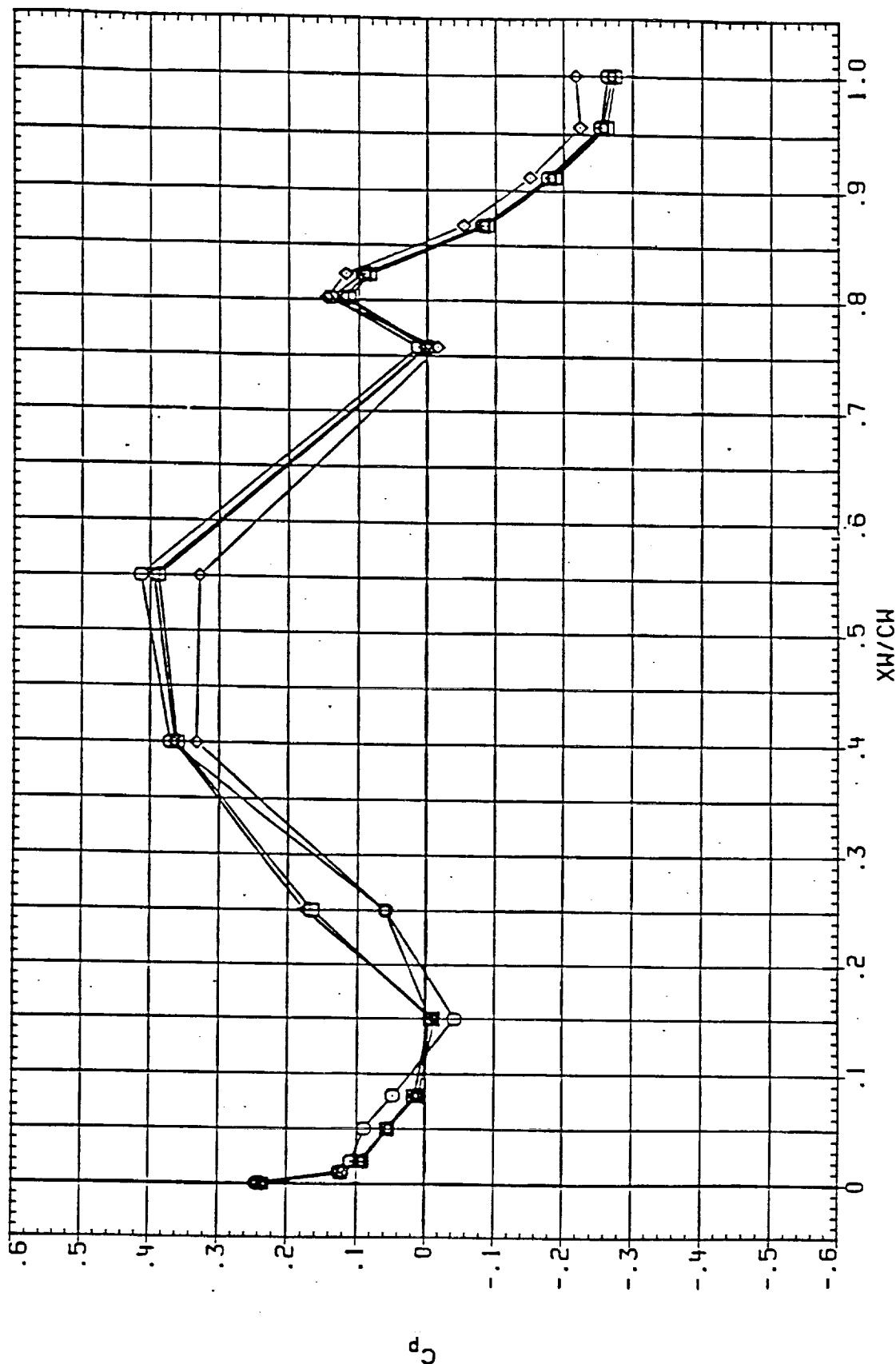


FIGURE 7 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .427    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEAROX	IB-ELV	OB-ELV
(RCOL49)	○	IAG13A.B/L OT*PSRM*PLUMES S1.2	1.550	.000	10.000	9.000
(RCOL57)	□	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.550	.000	10.000	5.000
(RCOL92)	◇	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.550	180.000	10.000	5.000
(RCOL00)	△	IAG13A.B/L OT*ASRM*PLUMES S1.3	1.550	999.000	10.000	5.000

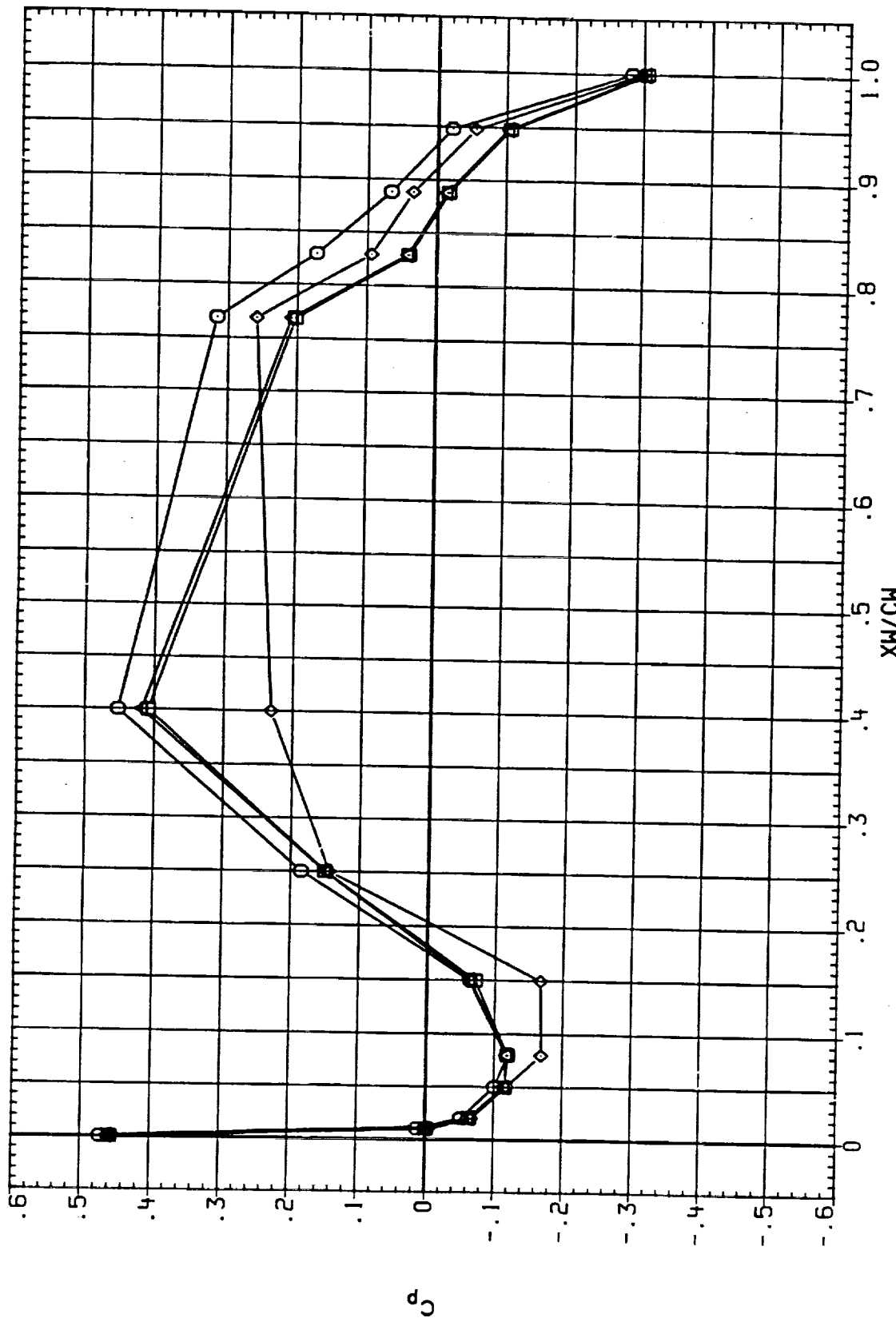


FIGURE 7 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
 ORBITER WING - LOWER SURFACE  
 BETA = .000    ETA = .811    ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT151)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT142)	□	IA613A, B/L OT+ASRH+PLUMES SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT180)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	-EXTERNAL TANK	.600	180.000	10.000	9.000
(RCOT1C1)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	-EXTERNAL TANK	.600	999.000	10.000	5.000

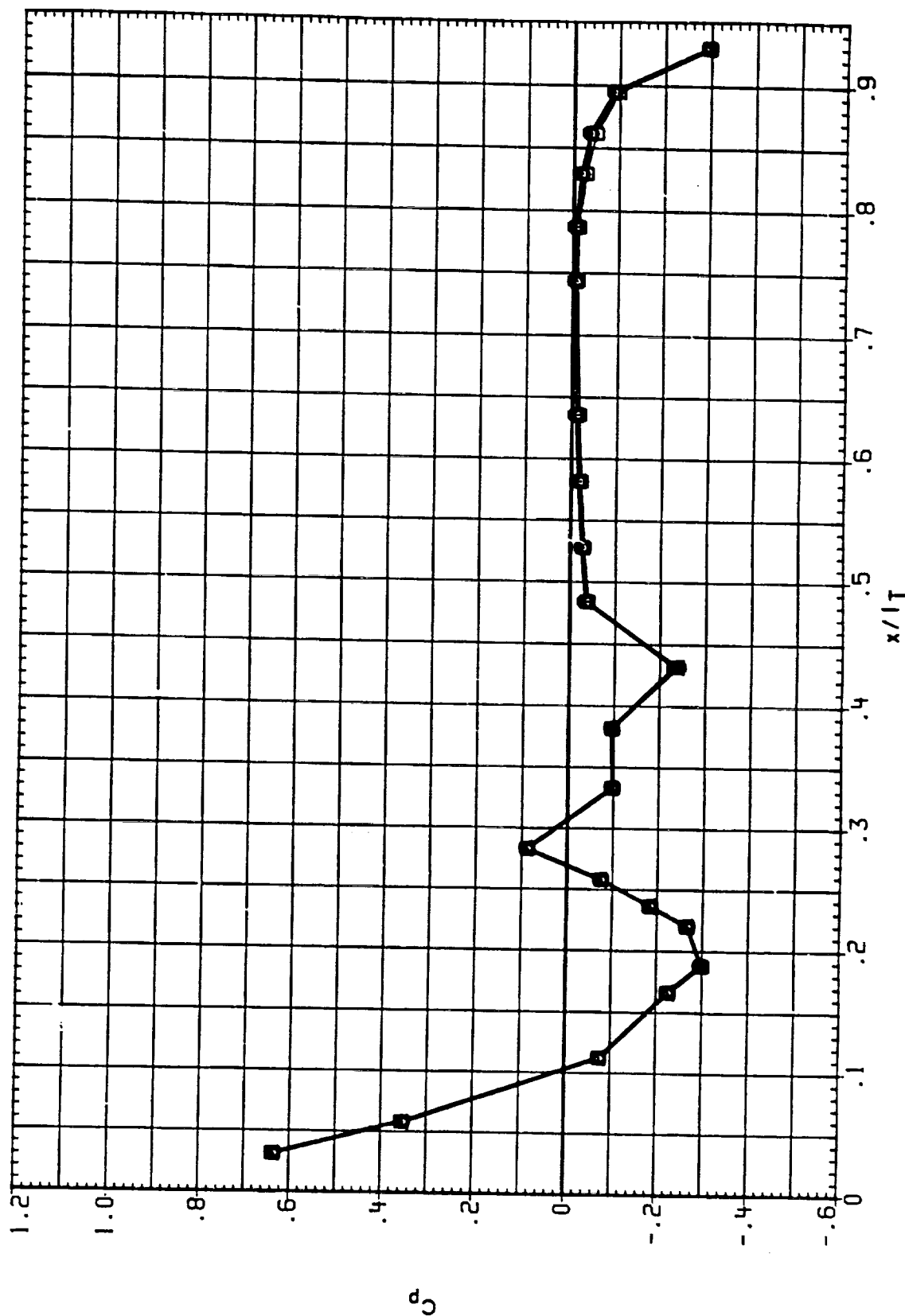


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT15)	□	IA613A.B/L OT+SRM+PLUMES SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT12)	□	IA613A.B/L OT+SRM+PLUMES SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT18)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	-EXTERNAL TANK	.600	180.000	10.000	9.000
(RCOTC1)	△	IA613A.B/L OT+SRM+PLUMES SI.2	-EXTERNAL TANK	.600	999.000	10.000	5.000

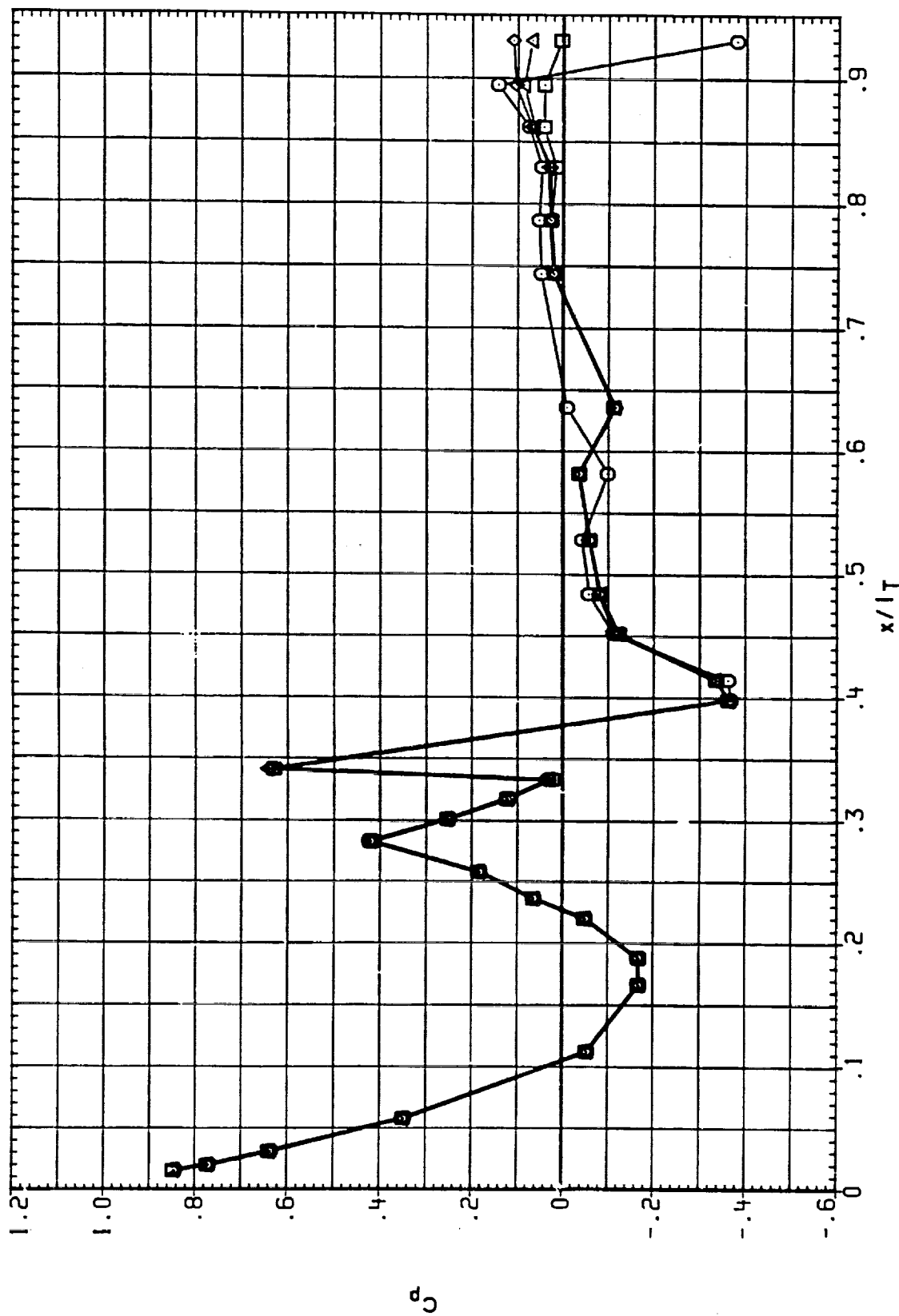


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 90.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT15)	□	IA613A, B/L OT+RSRH+PLUVE'S SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT42)	□	IA613A, B/L OT+ASRH+PLUVE'S SI.2	-EXTERNAL TANK	.600	.000	10.000	9.000
(RCOT80)	△	IA613A, B/L OT+ASRH+PLUVE'S SI.2	-EXTERNAL TANK	.600	180.000	10.000	9.000
(RCOT1C1)	△	IA613A, B/L OT+ASRH+PLUVE'S SI.2	-EXTERNAL TANK	.600	999.000	10.000	5.000

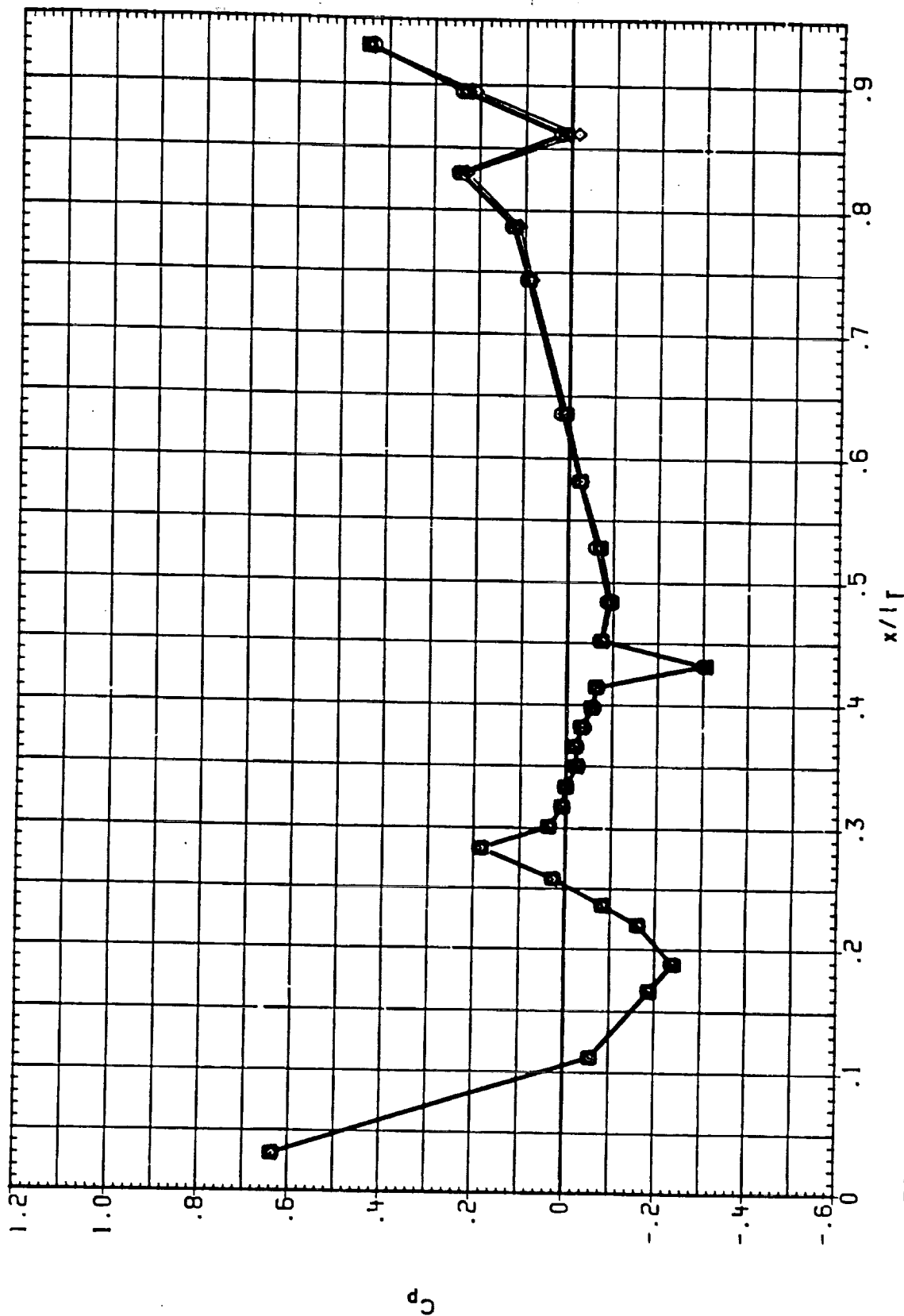


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK  
 BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
RC01161	○	IA613A-B/L 01-RSRH-PLUMES SI.2	.800	.000	10.000	9.000
RC01143	○	IA613A-B/L 01-ASRH-PLUMES SI.2	.800	.000	10.000	9.000
RC01811	◇	IA613A-B/L 01-ASRH-PLUMES SI.2	.800	180.000	10.000	9.000

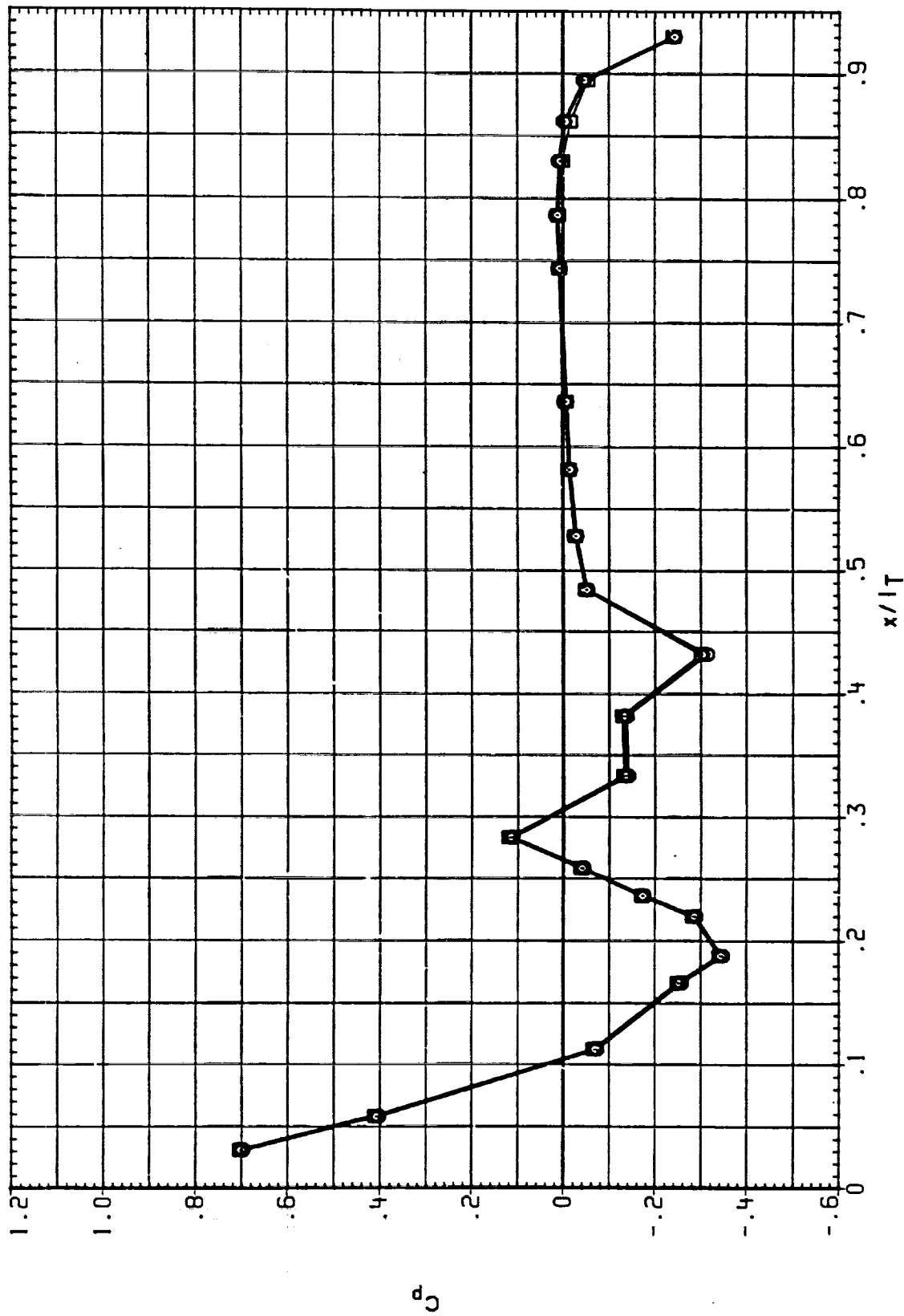


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	TANK	MACH	IEABOX	IB-ELV	OB-ELV
IRCO1161	○	IA613A.B/L OT+RSRM+PLUMES SI.2	-EXTERNAL TANK	.800	.000	10.000	9.000
IRCO1431	□	IA613A.B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	.800	.000	10.000	9.000
IRCO1811	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	.800	180.000	10.000	9.000

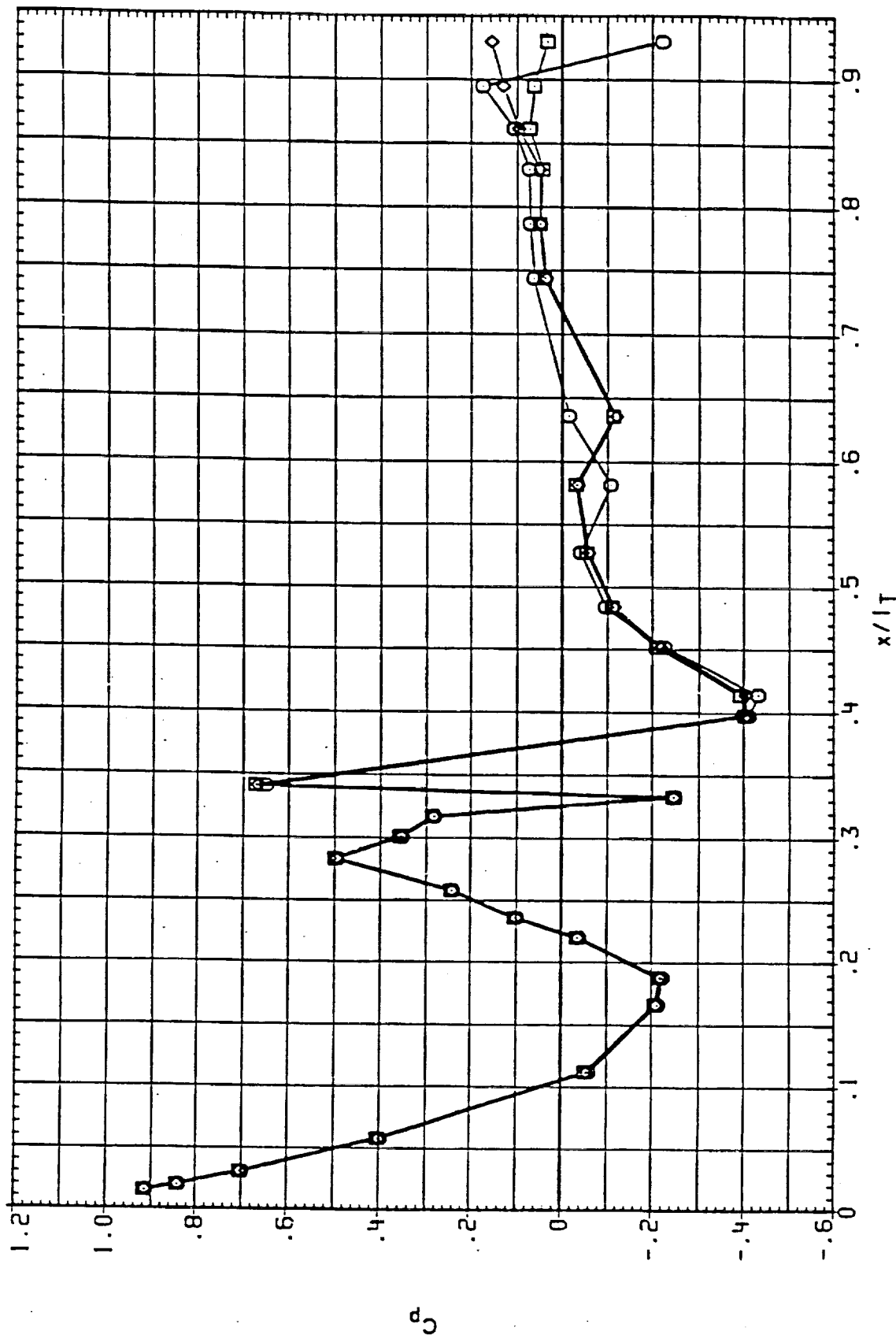


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT16)	○	IA613A, B/L OT+RSRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOT13)	○	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOT81)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	180.000	10.000	9.000

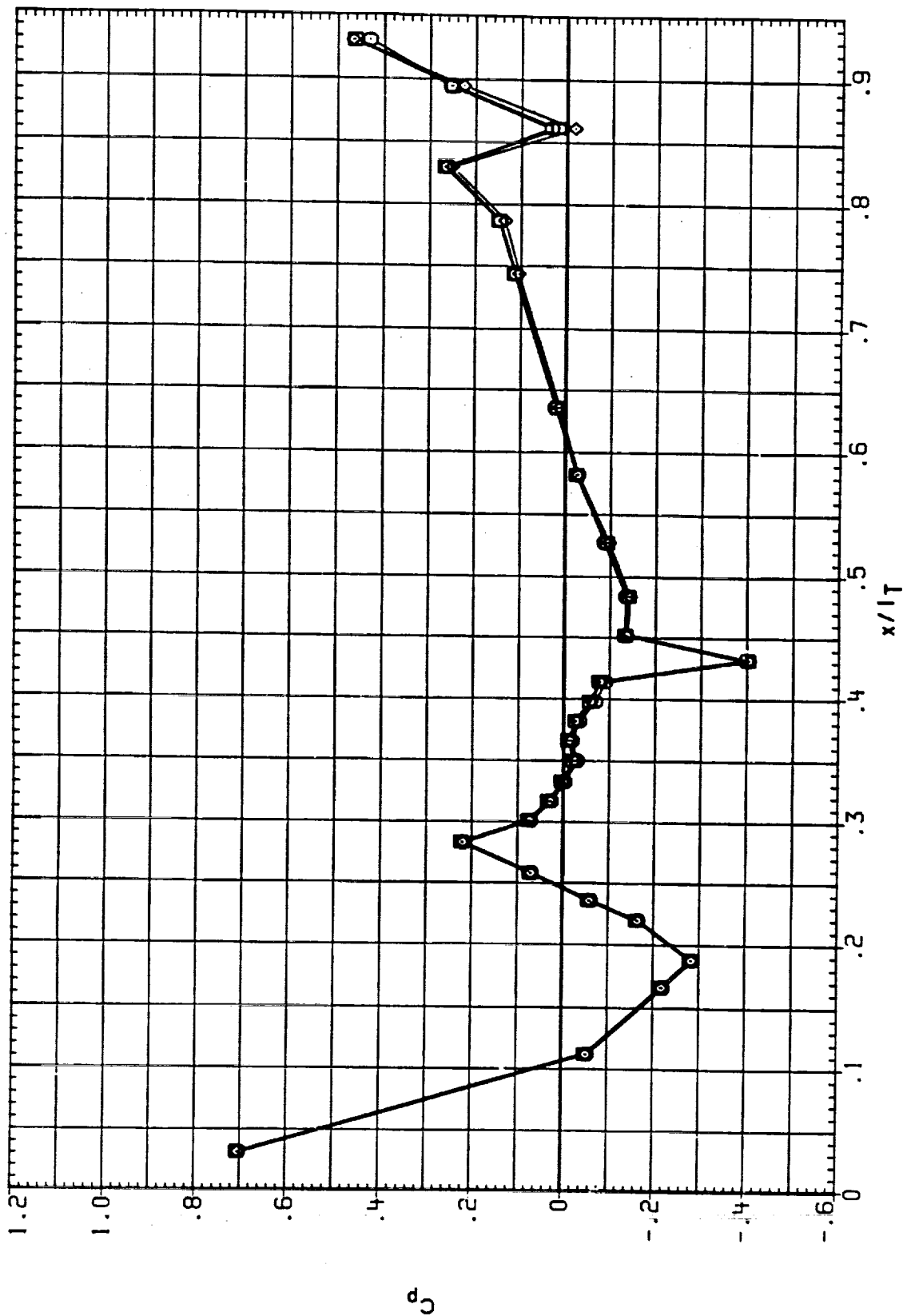


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 135.000 ALPHA = .000  
 EXTERNAL TANK



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0117)	□	IA613A, B/L 01+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RC0144)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RC0182)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RC01C2)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

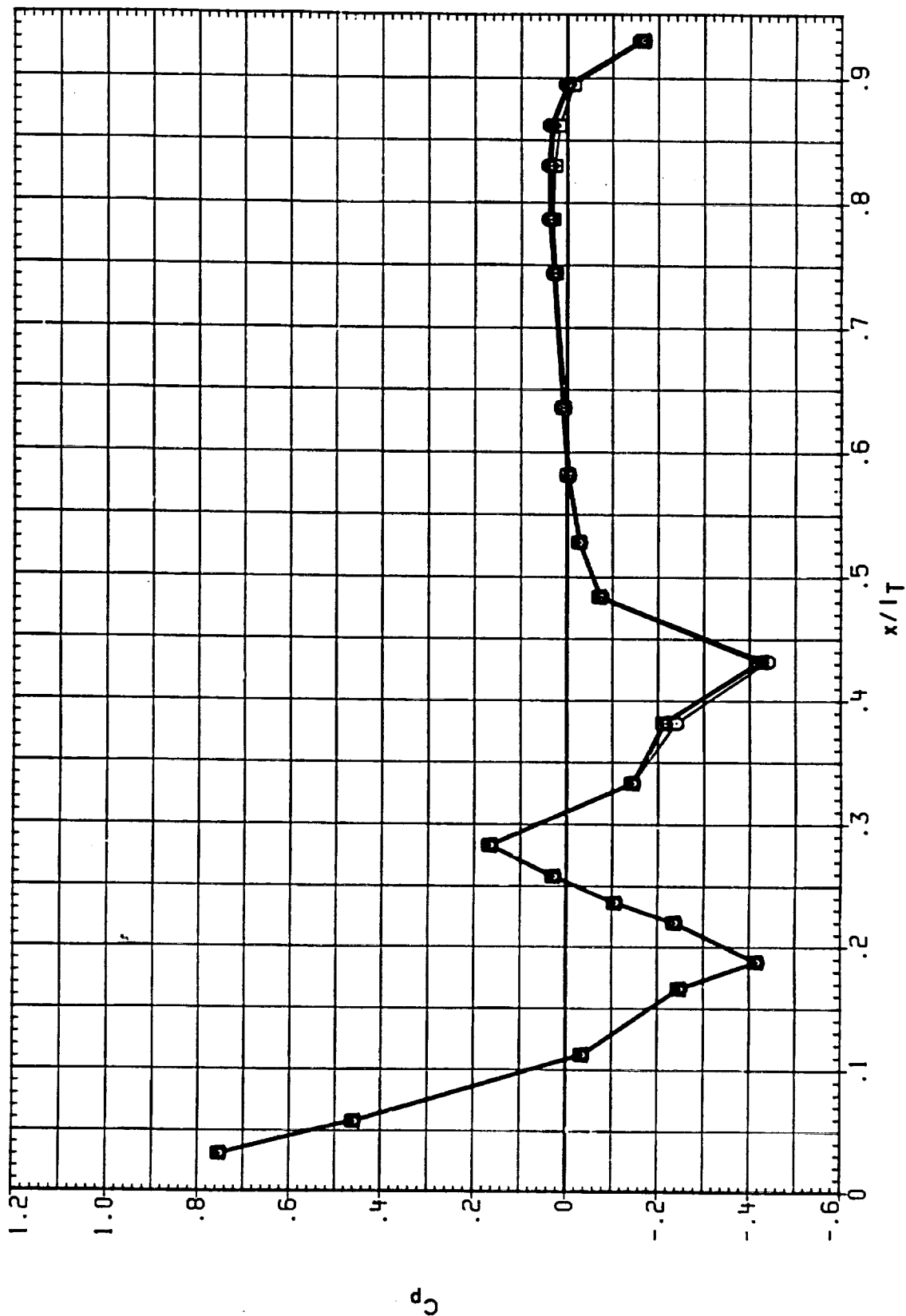


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT17)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RCOT44)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RCOT82)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	180.000	10.000	9.000
(RCOTC2)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	999.000	10.000	5.000

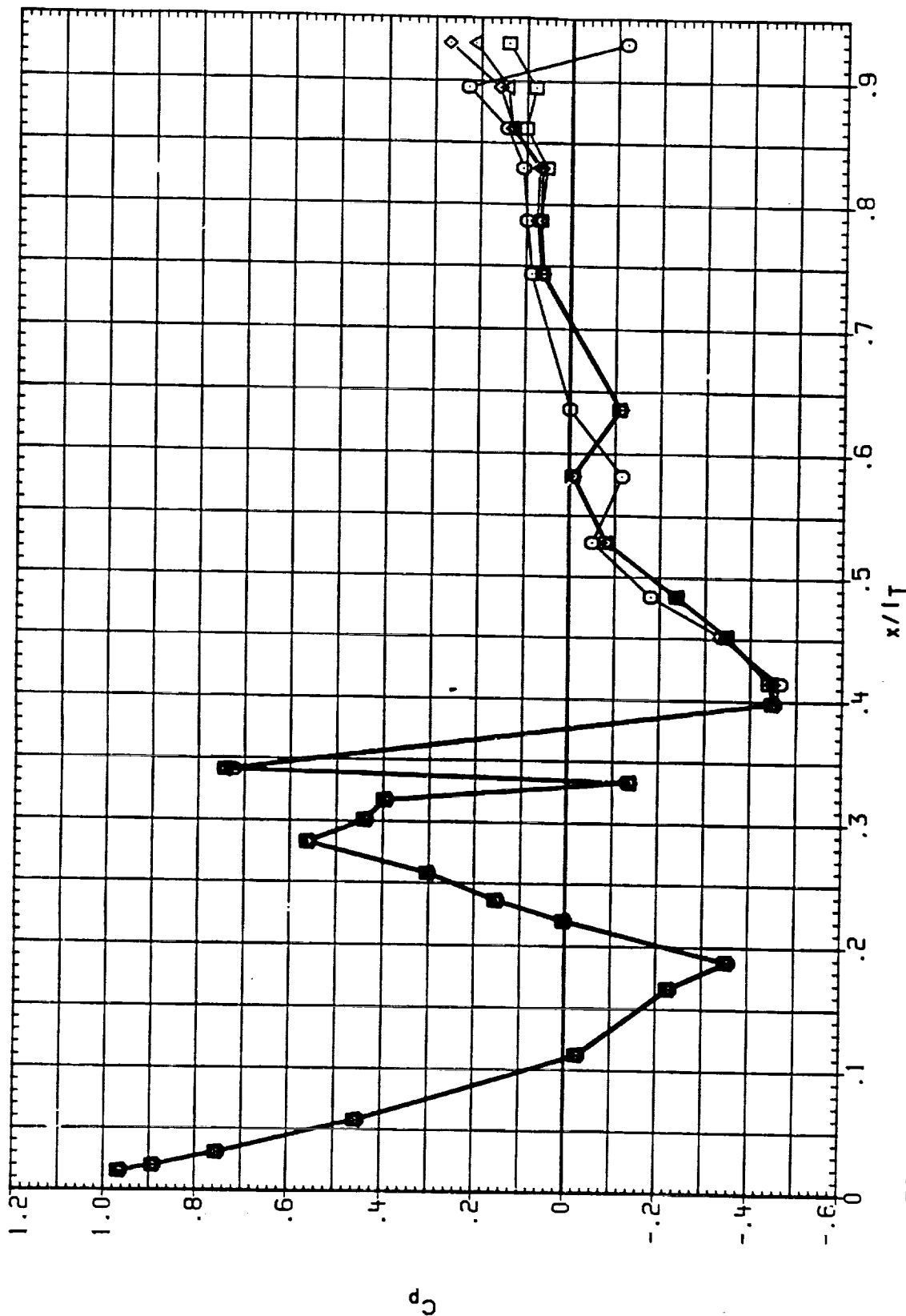


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 90.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT17)	□	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RCOT44)	◇	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	.000	10.000	9.000
(RCOT82)	◇	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	180.000	10.000	9.000
(RCOTC2)	△	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	.900	999.000	10.000	5.000

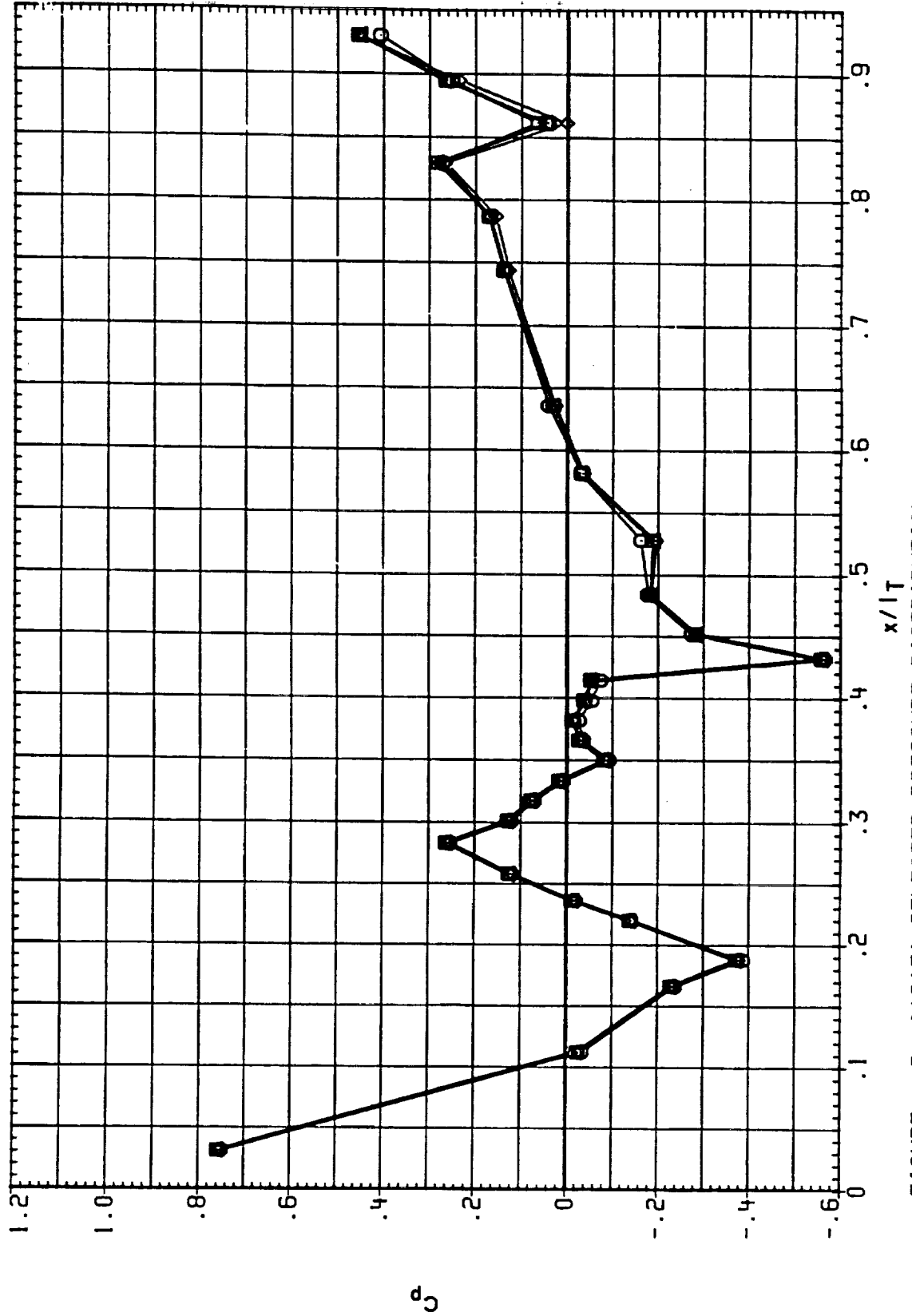


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT18)	□	IA613A,B/L OT+SRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOT15)	□	IA613A,B/L OT+SRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOT13)	◇	IA613A,B/L OT+SRM+PLUMES SI.2	.950	180.000	10.000	9.000

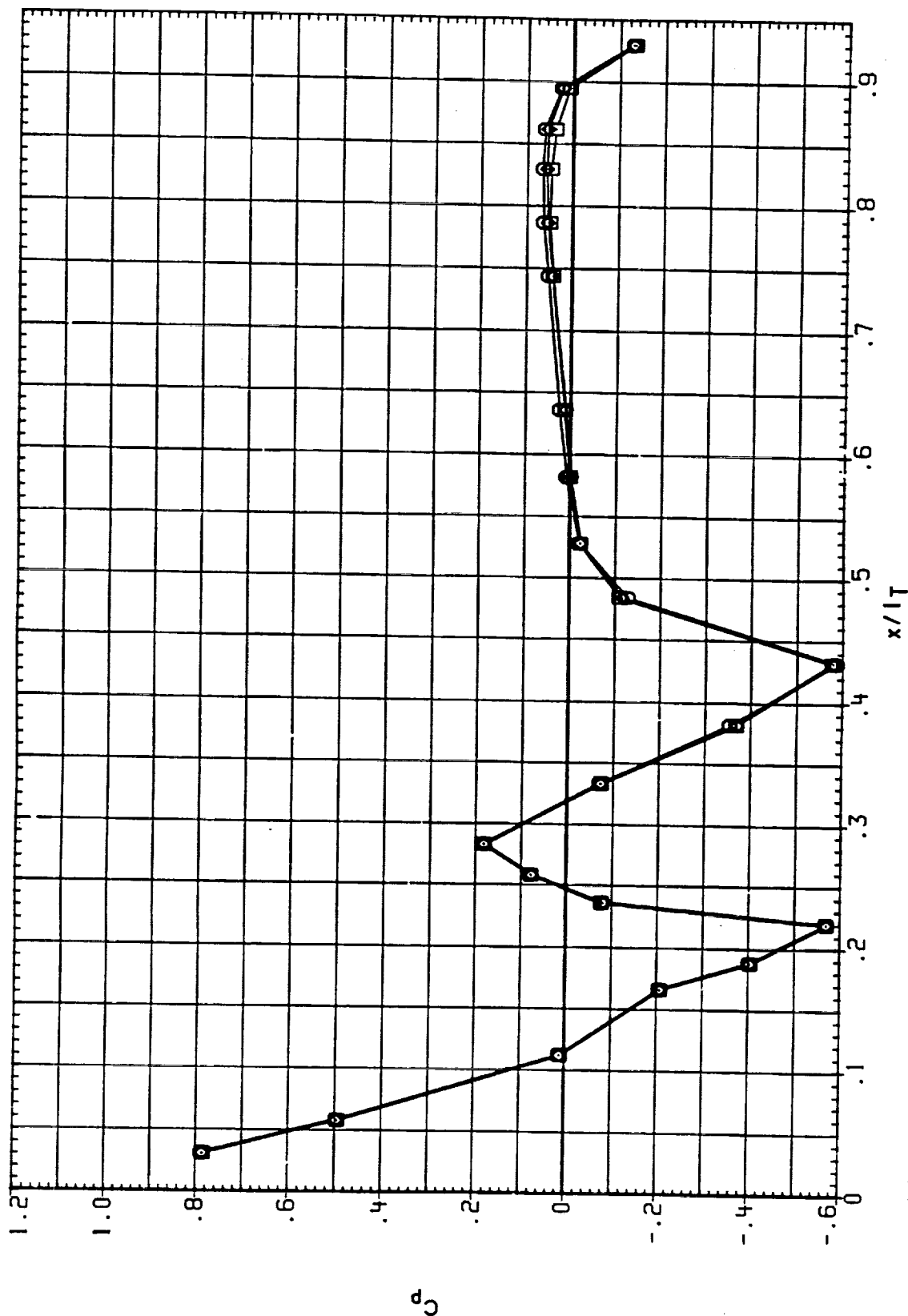


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 30.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0118)	○	IA613A-B/L OT-ASRH-PLUMES SI.2	.950	.000	10.000	9.000
(RC0145)	□	IA613A-B/L OT-ASRH-PLUMES SI.2	.950	.000	10.000	9.000
(RC0183)	◇	IA613A-B/L OT-ASRH-PLUMES SI.2	.950	180.000	10.000	9.000

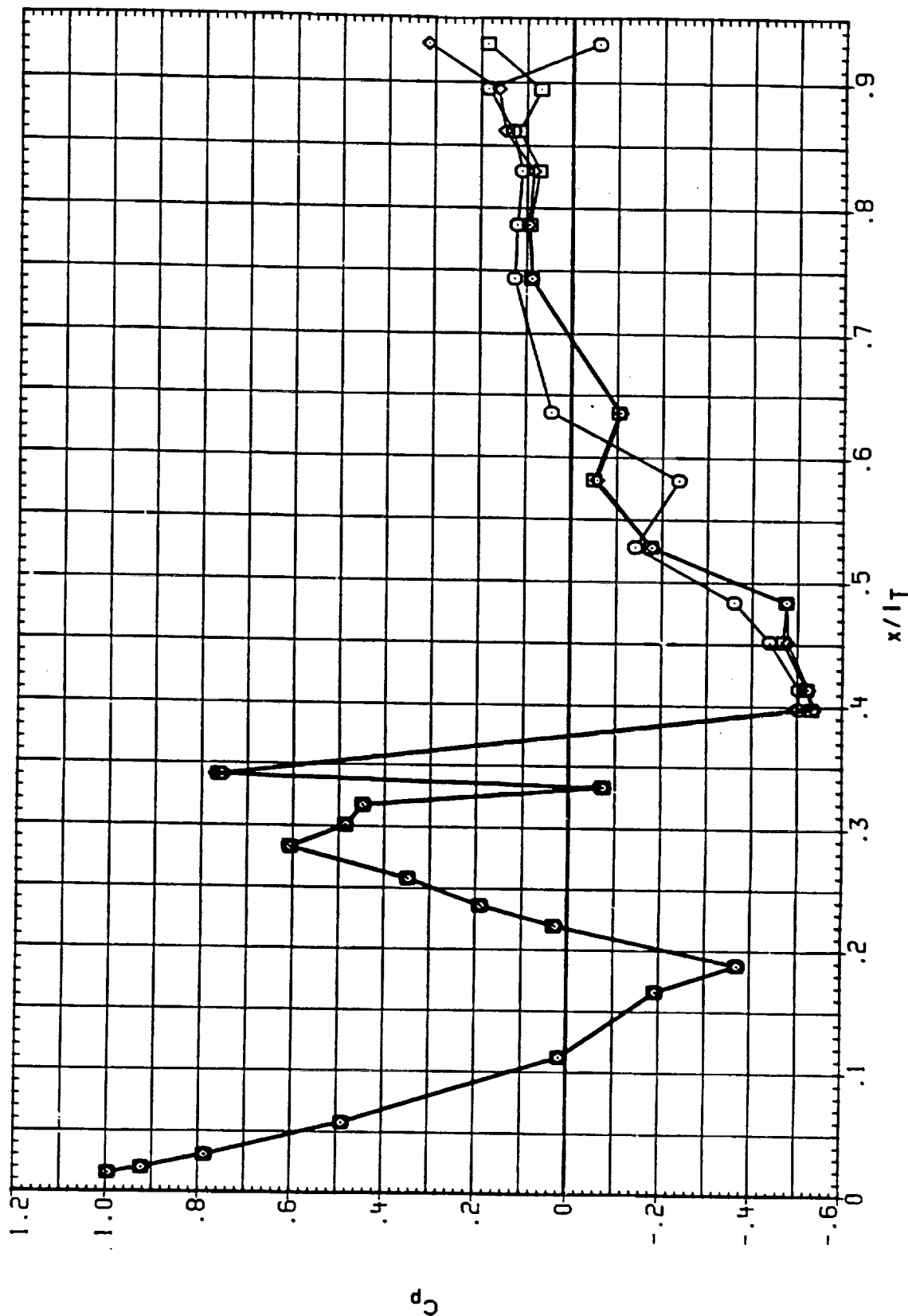


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RC01181)	○	IA613A, B/L OT+PSRM+PLUMES SI.2	.950	.000	10.000	9.000
(RC01451)	□	IA613A, B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RC01831)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.950	180.000	10.000	9.000

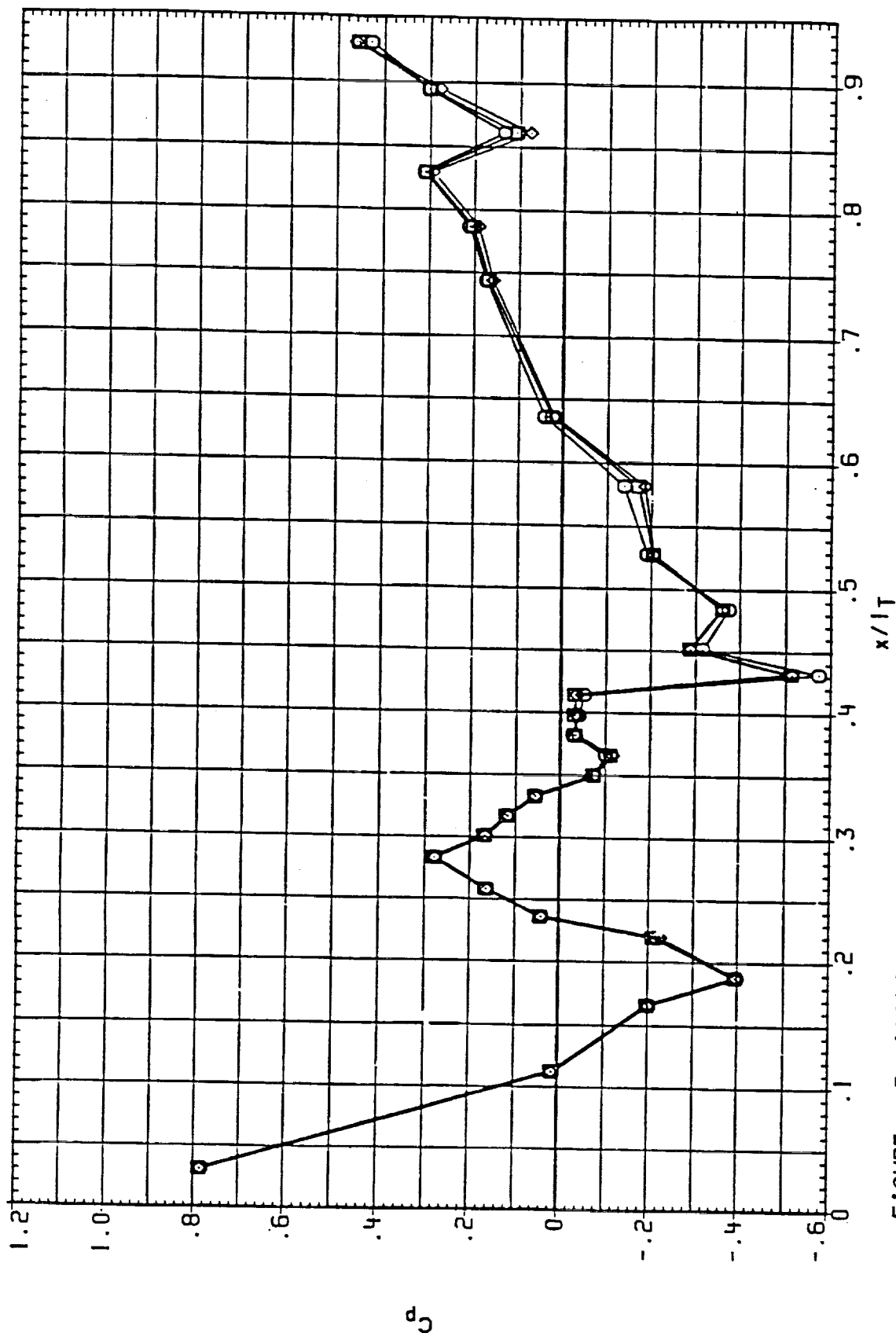


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT19)	○	IAG13A, B/L OT+RSRH+PLUMES SI.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
(RCOT46)	□	IAG13A, B/L OT+ASRH+PLUMES SI.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
(RCOT84)	◇	IAG13A, B/L OT+ASRH+PLUMES SI.2	-EXTERNAL TANK	1.050	180.000	10.000	9.000

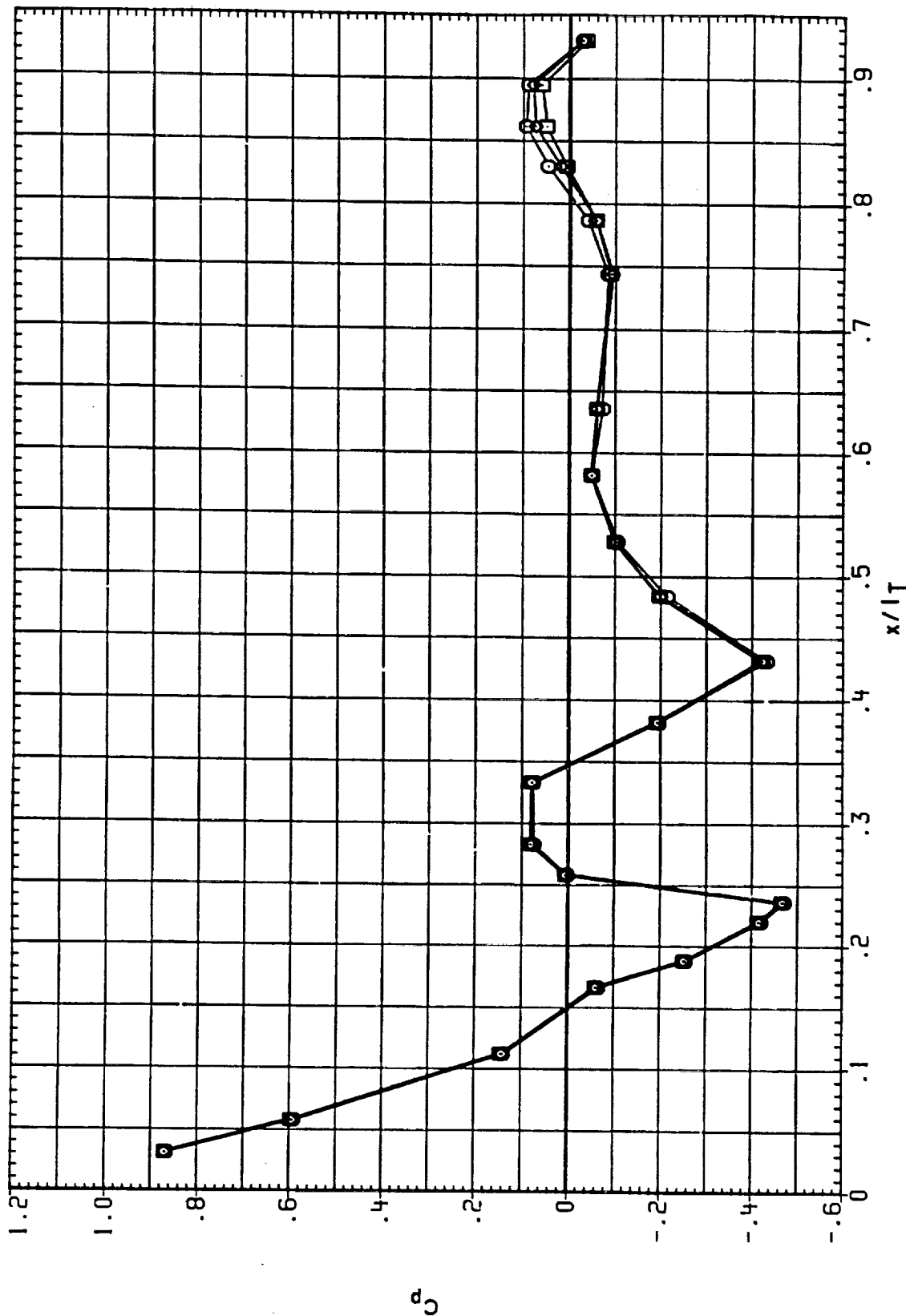


FIGURE 8 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT19)	○	IA613A.B/L OT.PSRM.PLUMES S1.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
(RCOT16)	□	IA613A.B/L OT.ASRM.PLUMES S1.2	-EXTERNAL TANK	1.050	.000	10.000	9.000
(RCOT84)	◇	IA613A.B/L OT.ASRM.PLUMES S1.2	-EXTERNAL TANK	1.050	180.000	10.000	9.000

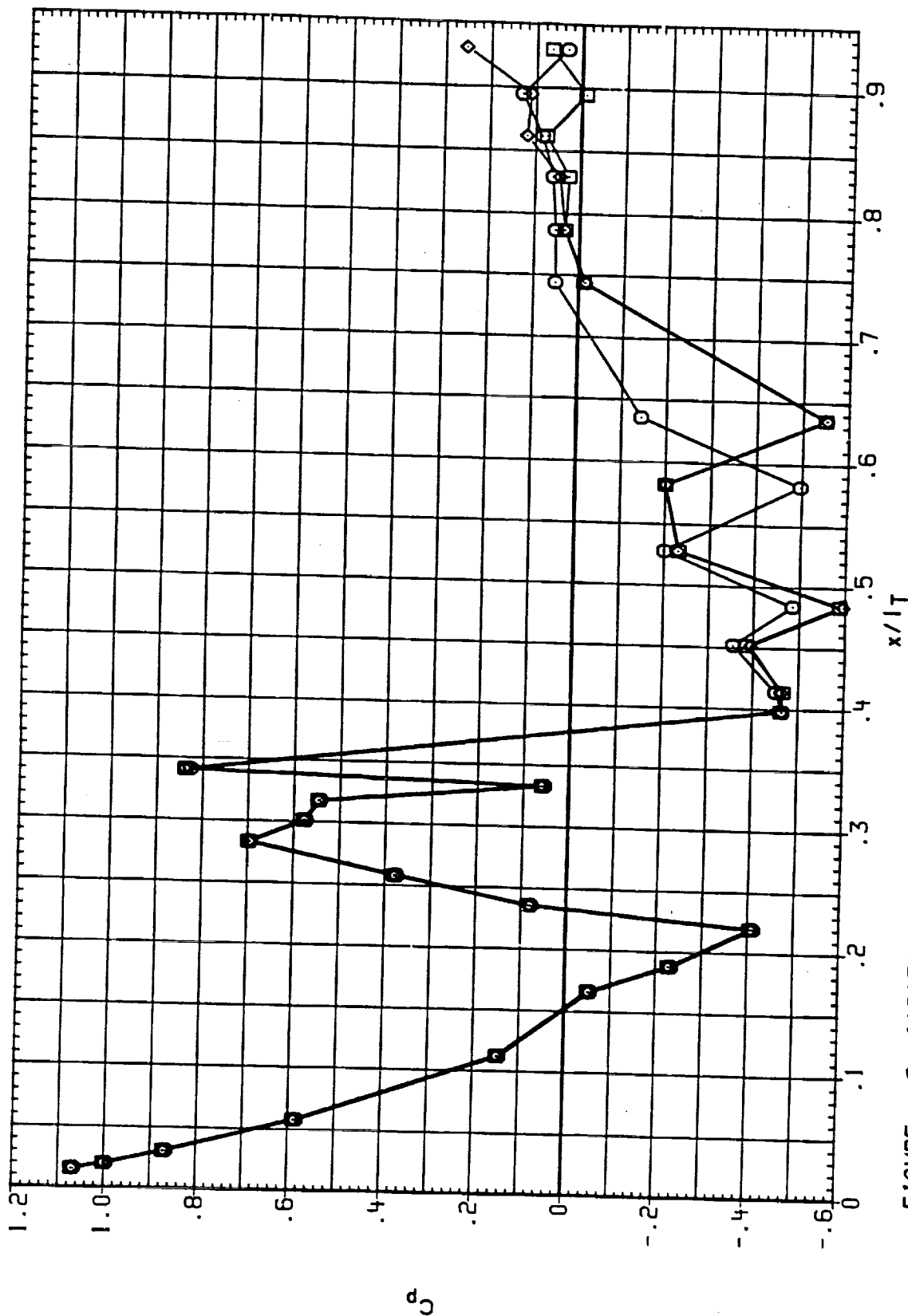


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 90.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0119)	○	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RC0146)	□	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RC0184)	◇	IA613A, B/L OT+SRM+PLUMES SI.2	1.050	180.000	10.000	9.000
		-EXTERNAL TANK				
		-EXTERNAL TANK				
		-EXTERNAL TANK				

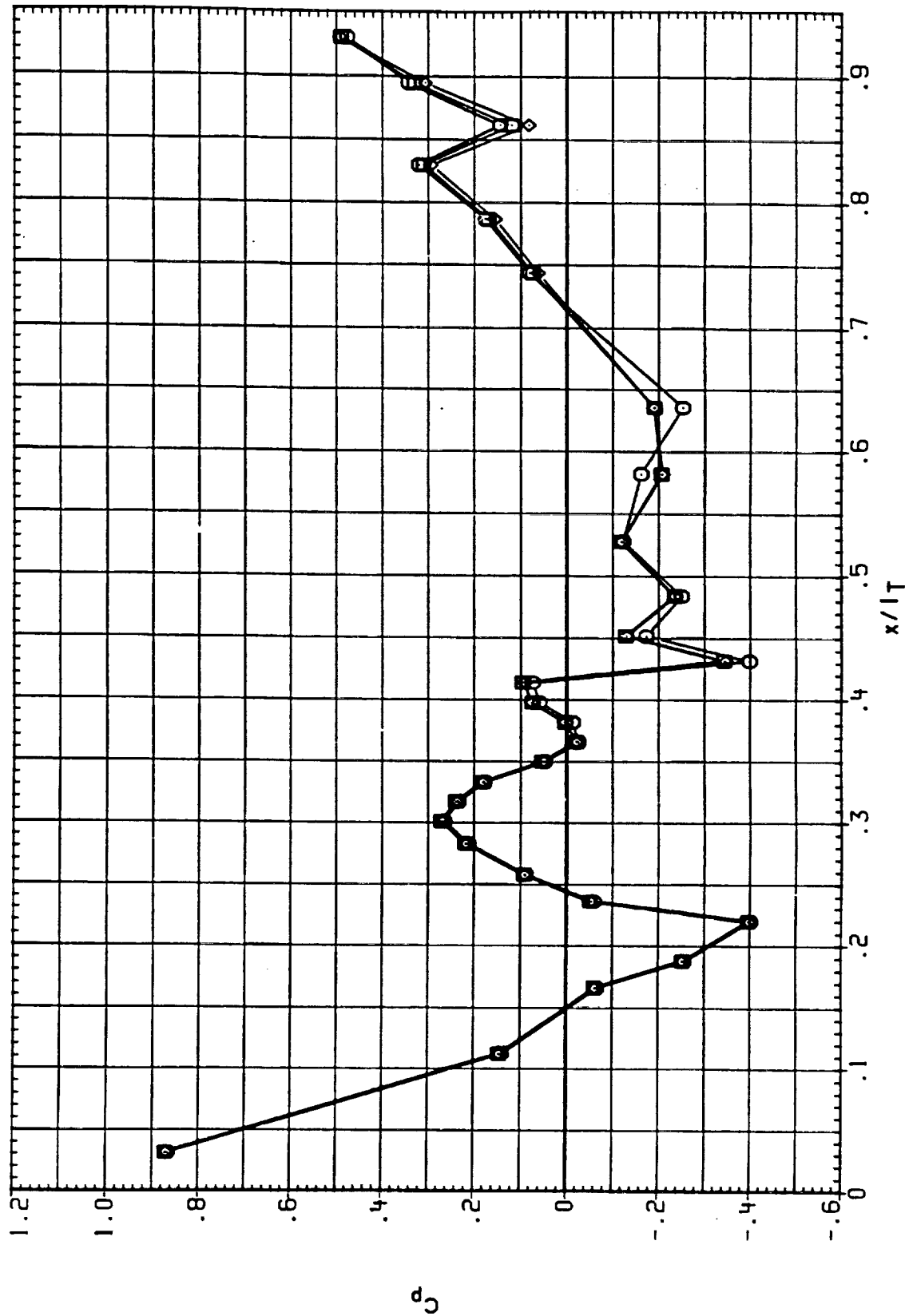


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT20)	□	IA613A-B/L OT+SRM+PLUHS SI.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT47)	◇	IA613A-B/L OT+SRM+PLUHS SI.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT85)	◇	IA613A-B/L OT+SRM+PLUHS SI.2	-EXTERNAL TANK	1.100	180.000	10.000	9.000
(RCOTC3)	△	IA613A-B/L OT+SRM+PLUHS SI.2	-EXTERNAL TANK	1.100	999.000	10.000	5.000

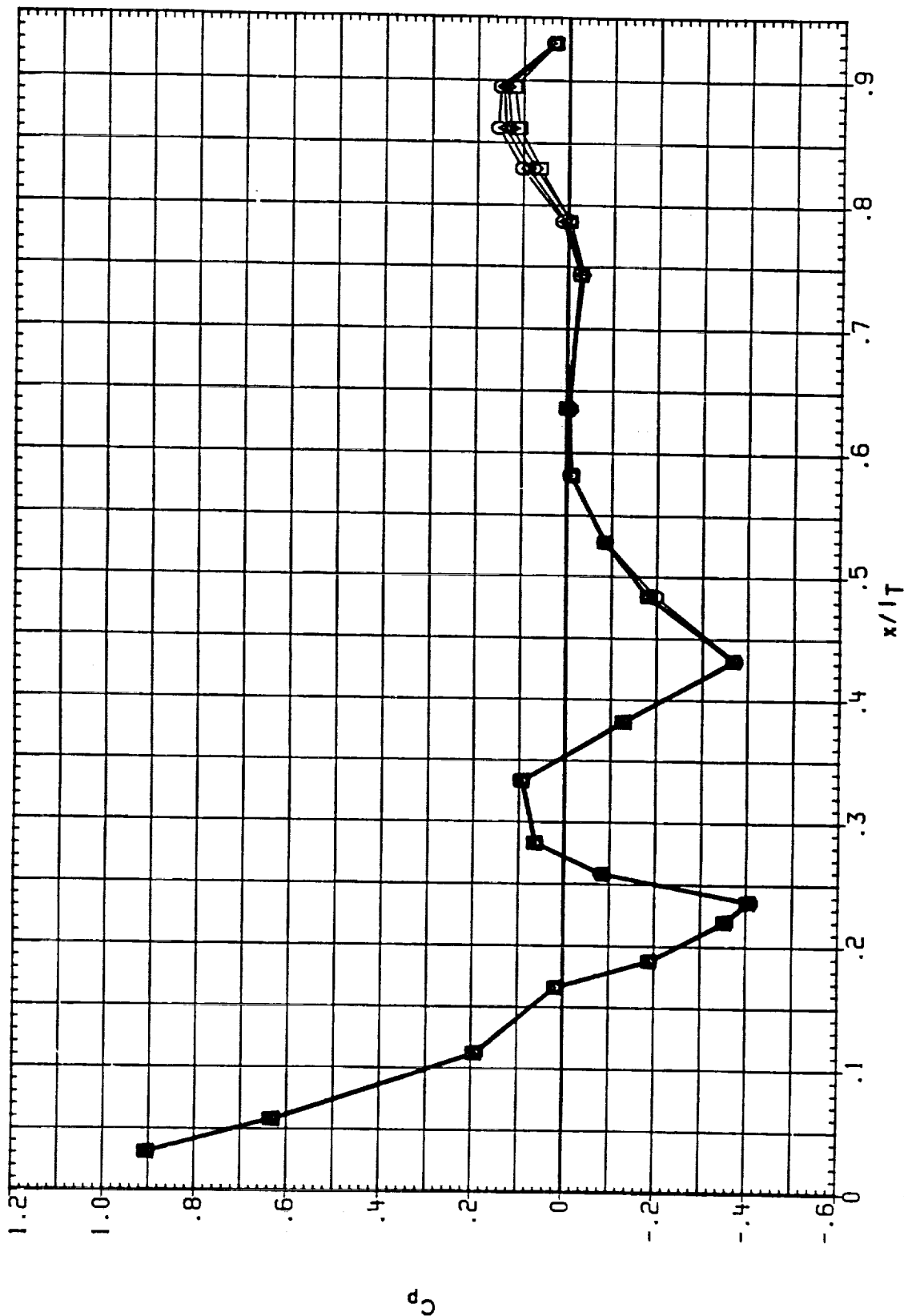


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT20)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT47)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RCOT85)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	180.000	10.000	9.000
(RCOTC3)	△	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.100	999.000	10.000	5.000

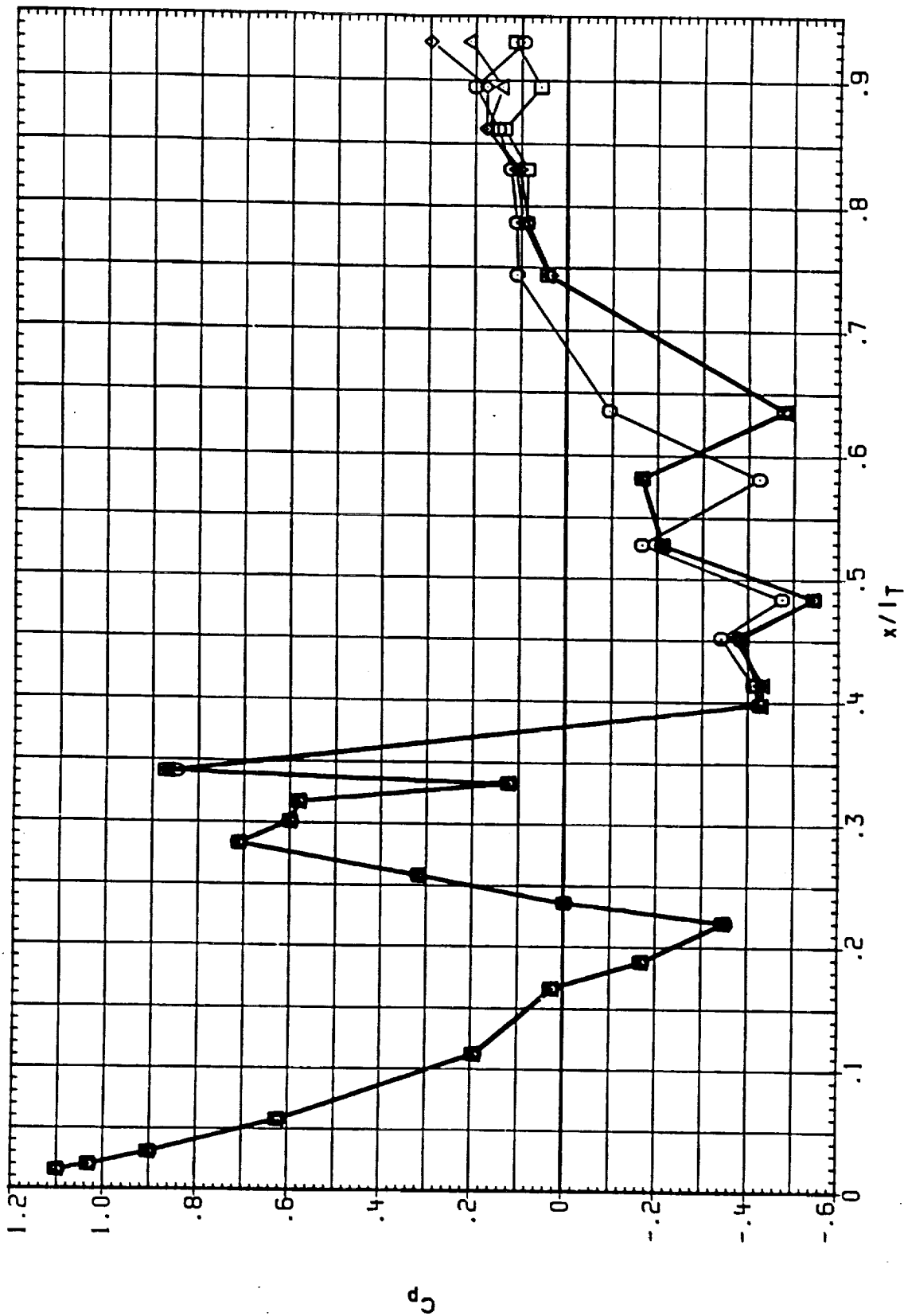


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0120)	□	IA613A-B/L 01-PSRM-PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RC0147)	□	IA613A-B/L 01-ASRM-PLUMES S1.2	-EXTERNAL TANK	1.100	.000	10.000	9.000
(RC0185)	◇	IA613A-B/L 01-ASRM-PLUMES S1.2	-EXTERNAL TANK	1.100	180.000	10.000	9.000
(RC01C3)	△	IA613A-B/L 01-ASRM-PLUMES S1.2	-EXTERNAL TANK	1.100	999.000	10.000	5.000

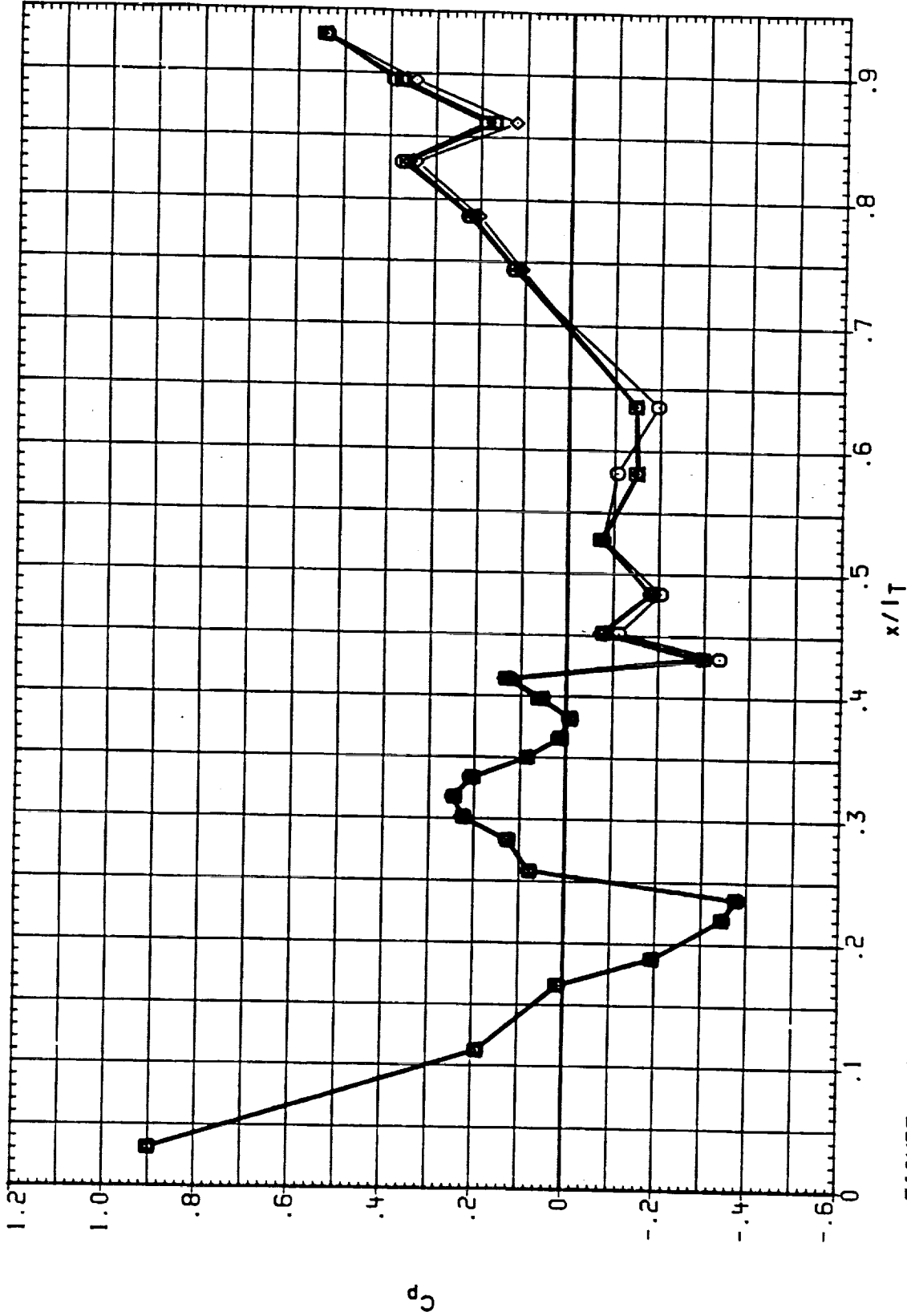


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 135.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT21)	○	IA613A-B/L OT+PSRM+PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT48)	◇	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT86)	◇	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XCOTC4)	△	IA613A-B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

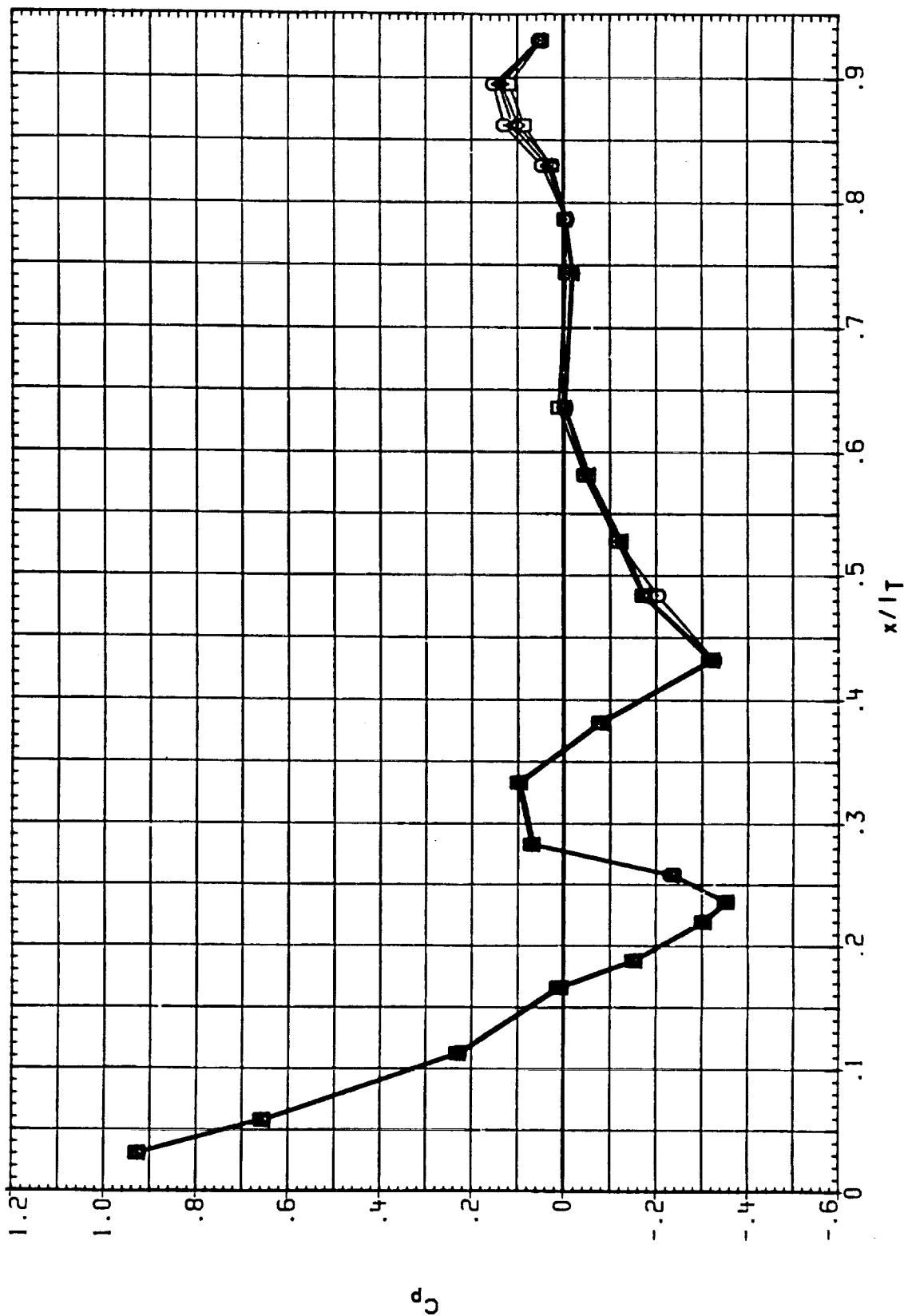


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK

BETA = .000

PHI = 30.000

ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0121)	○	IA613A-B/L OT+PSRM+PLUMES SI.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RC0148)	□	IA613A-B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RC0186)	◇	IA613A-B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XC01C4)	△	IA613A-B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

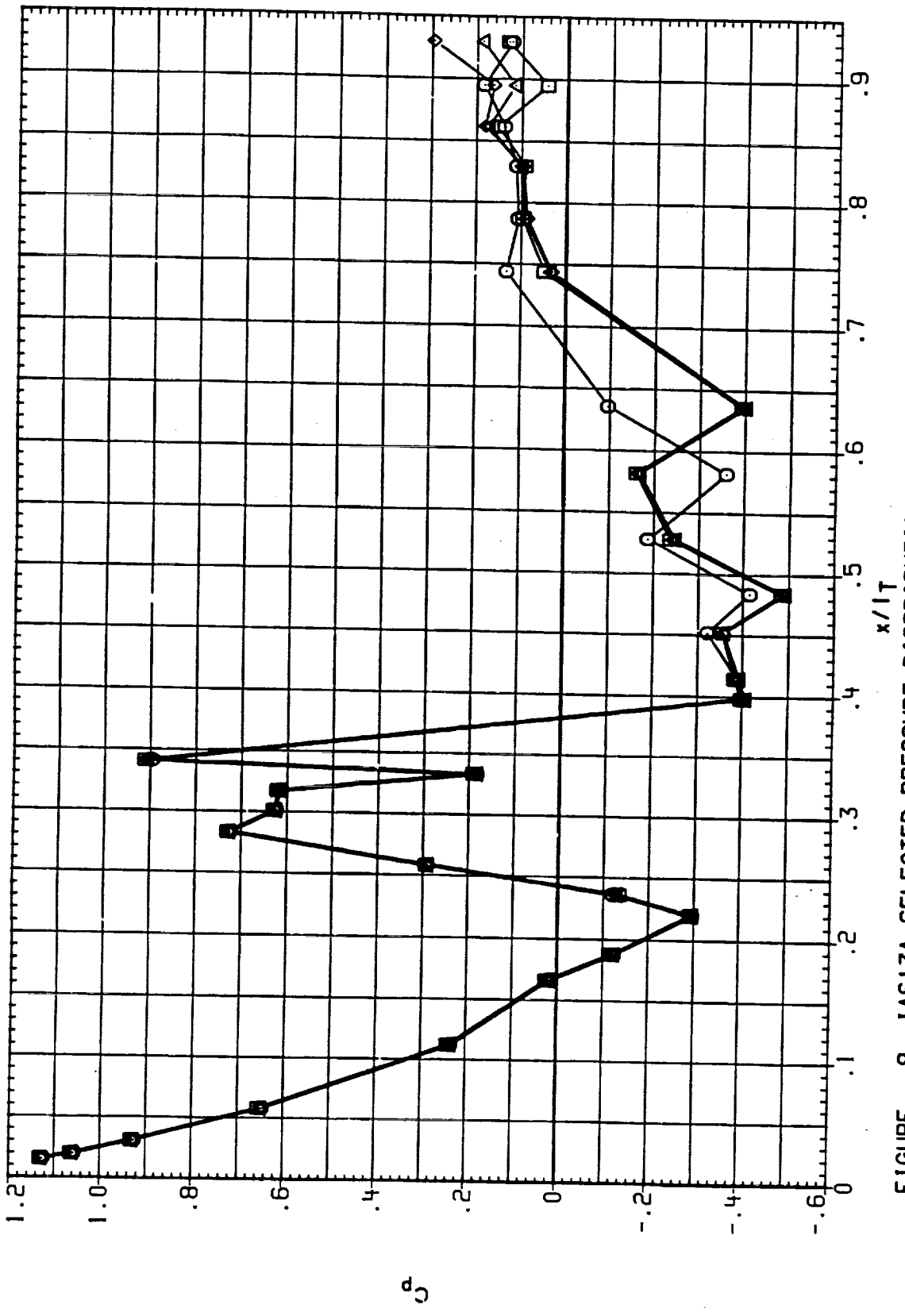


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    PHI = 90.000    ALPHA = .000    PAGE 200

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT21)	○	IA613A, B/L OT+PSRM+PLUMES SI.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT48)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	.000	10.000	9.000
(RCOT86)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	180.000	10.000	9.000
(XCOTCH)	△	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.150	999.000	10.000	5.000

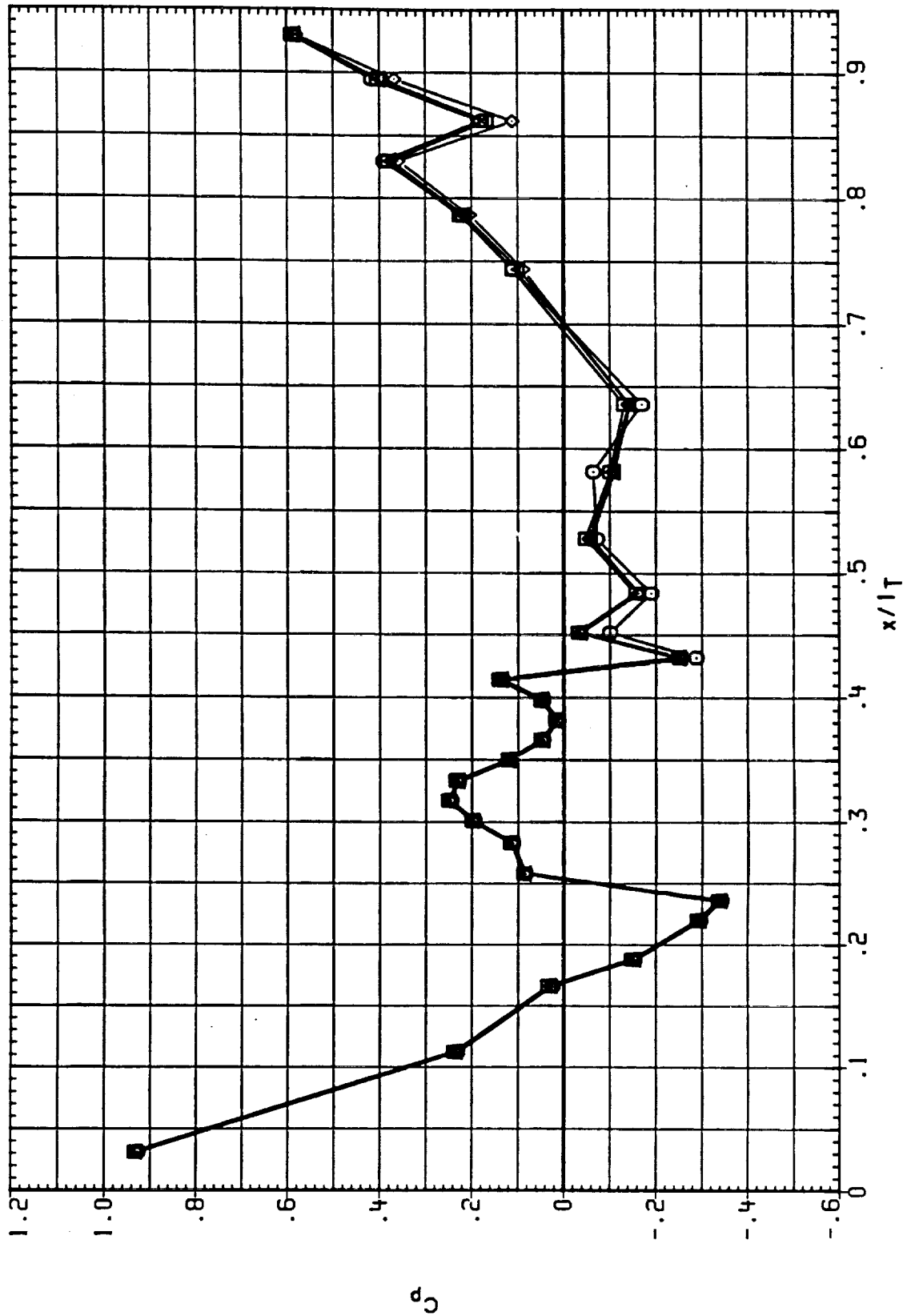


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK

BETA = .000

PHI = 135.000

ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT22)	□	IA613A, B/L OT+RSRM+PLUMES SI.2	-EXTERNAL TANK	1.250	.000	10.000	9.000
(RCOT49)	□	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.250	.000	10.000	9.000
(RCOT87)	△	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.250	180.000	10.000	9.000
(RCOTC5)	△	IA613A, B/L OT+ASRM+PLUMES SI.2	-EXTERNAL TANK	1.250	999.000	10.000	5.000

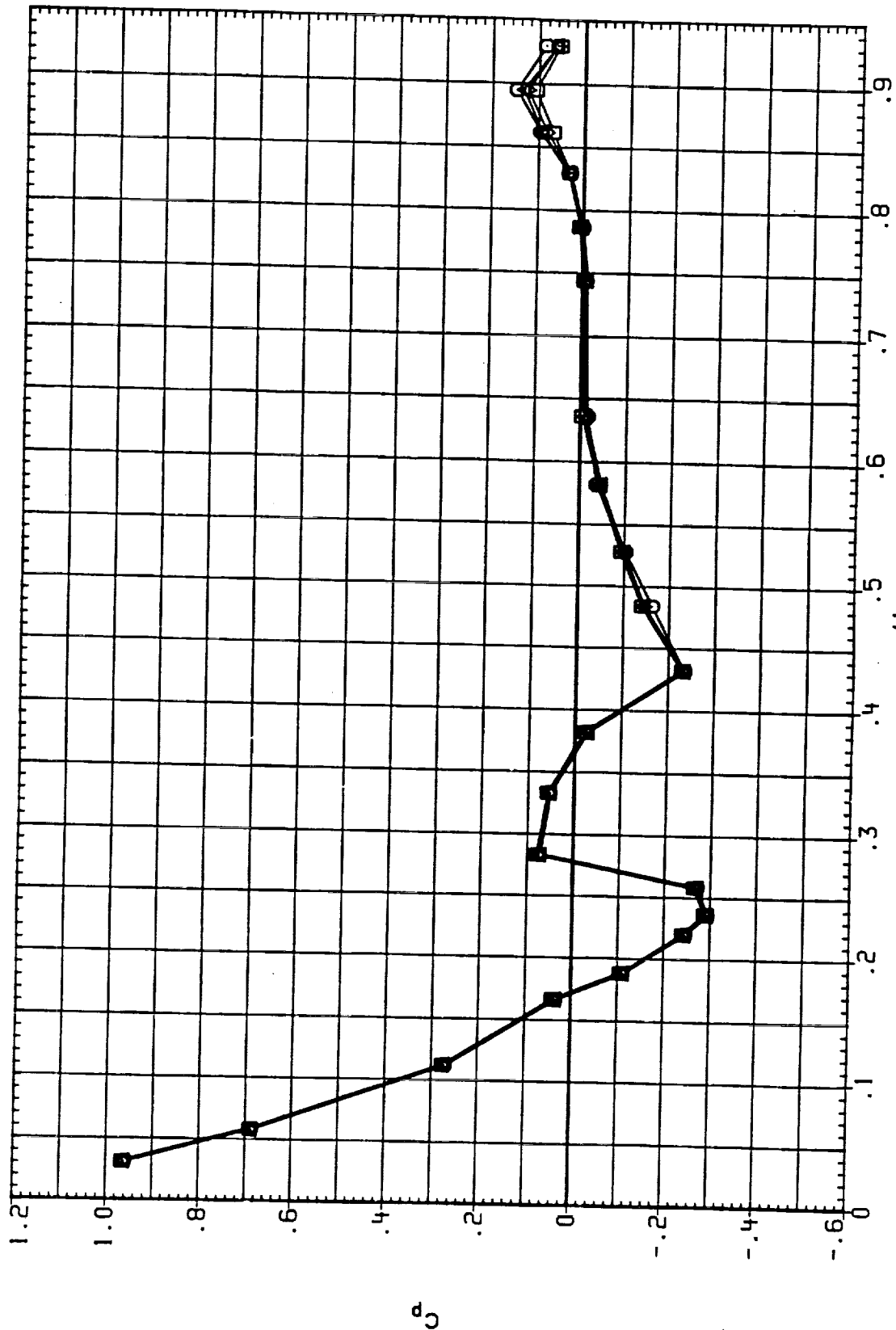


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT22)	○	IA613A,B/L OT+RSRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOT49)	○	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOT87)	◇	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOTC5)	△	IA613A,B/L OT+ASRH+PLUMES S1.2	1.250	999.000	10.000	5.000

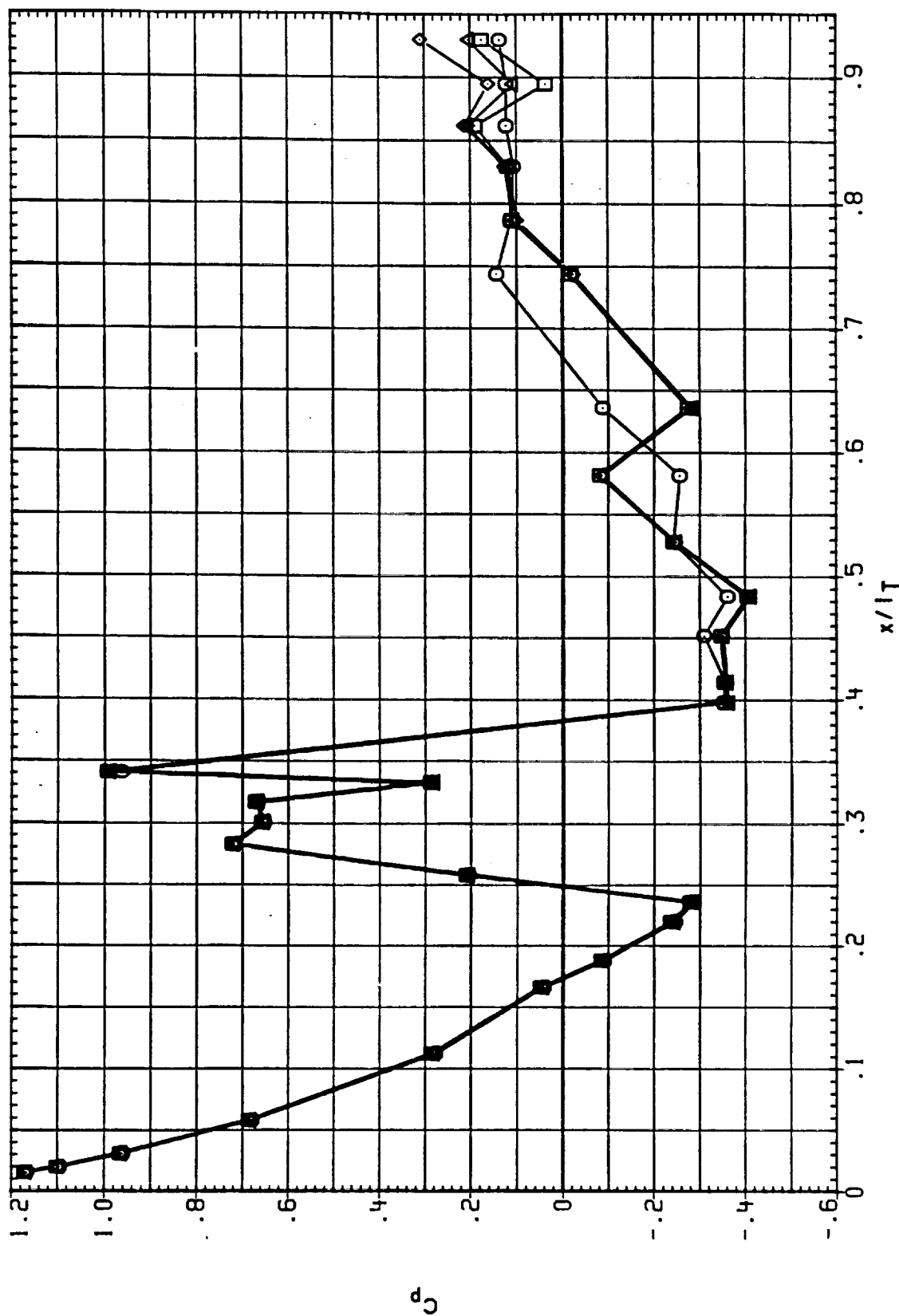


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 90.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC0122)	○	IA613A, B/L OT-RSRH-PLUMES SI.2	-EXTERNAL TANK	1.250	.000	10.000	9.000
(RC0149)	□	IA613A, B/L OT-ASRH-PLUMES SI.2	-EXTERNAL TANK	1.250	.000	10.000	9.000
(RC0187)	◇	IA613A, B/L OT-ASRH-PLUMES SI.2	-EXTERNAL TANK	1.250	180.000	10.000	9.000
(RC01C5)	△	IA613A, B/L OT-ASRH-PLUMES SI.2	-EXTERNAL TANK	1.250	999.000	10.000	5.000

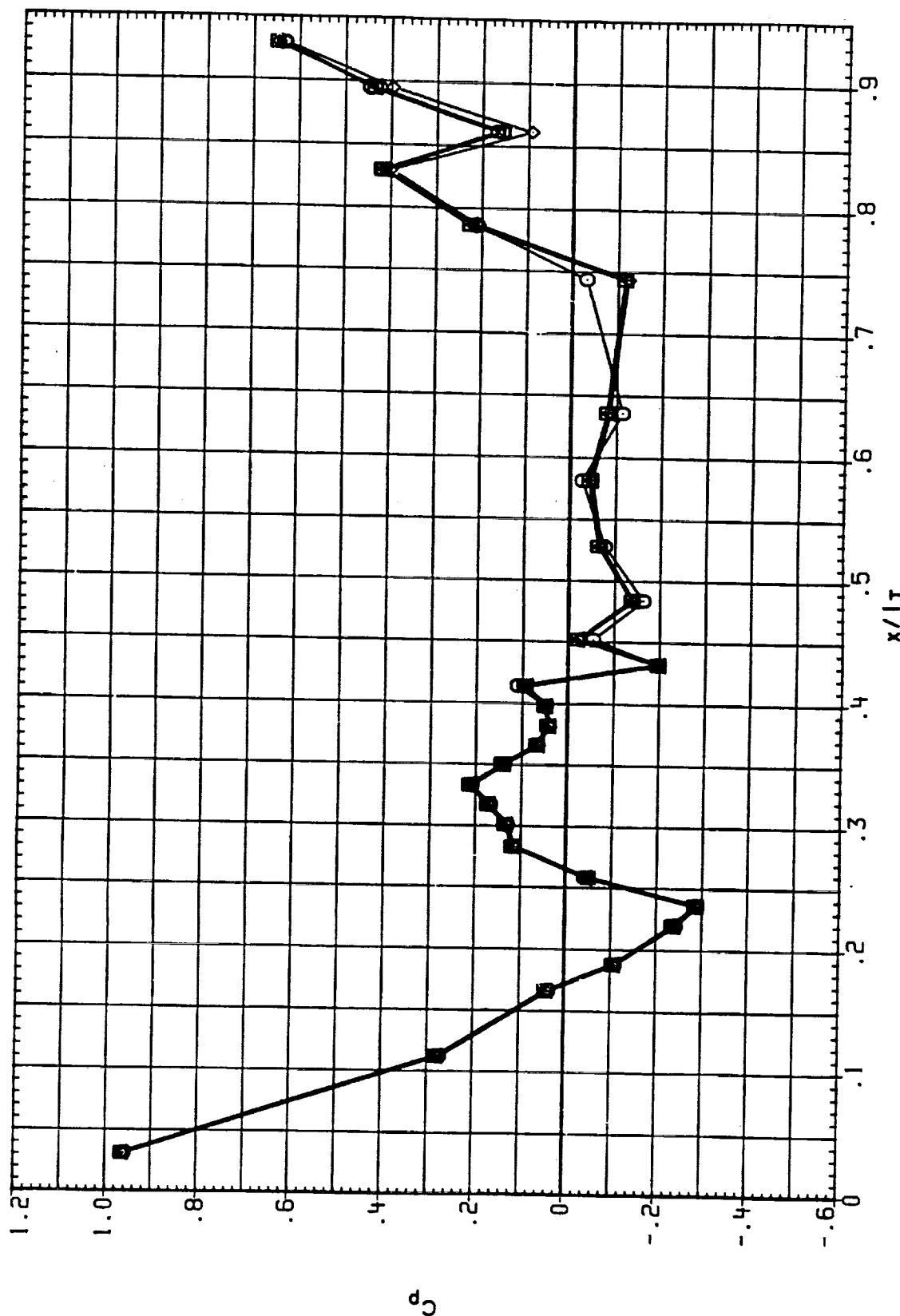


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT16)	○	IA613A-B/L OT-ASRH-PLUMES SI.2	-EXTERNAL TANK	1.300	.000	10.000	9.000
(RCOT154)	□	IA613A-B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.300	.000	10.000	5.000
(RCOT189)	△	IA613A-B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.300	180.000	10.000	5.000
(RCOT1C7)	△	IA613A-B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.300	999.000	10.000	5.000

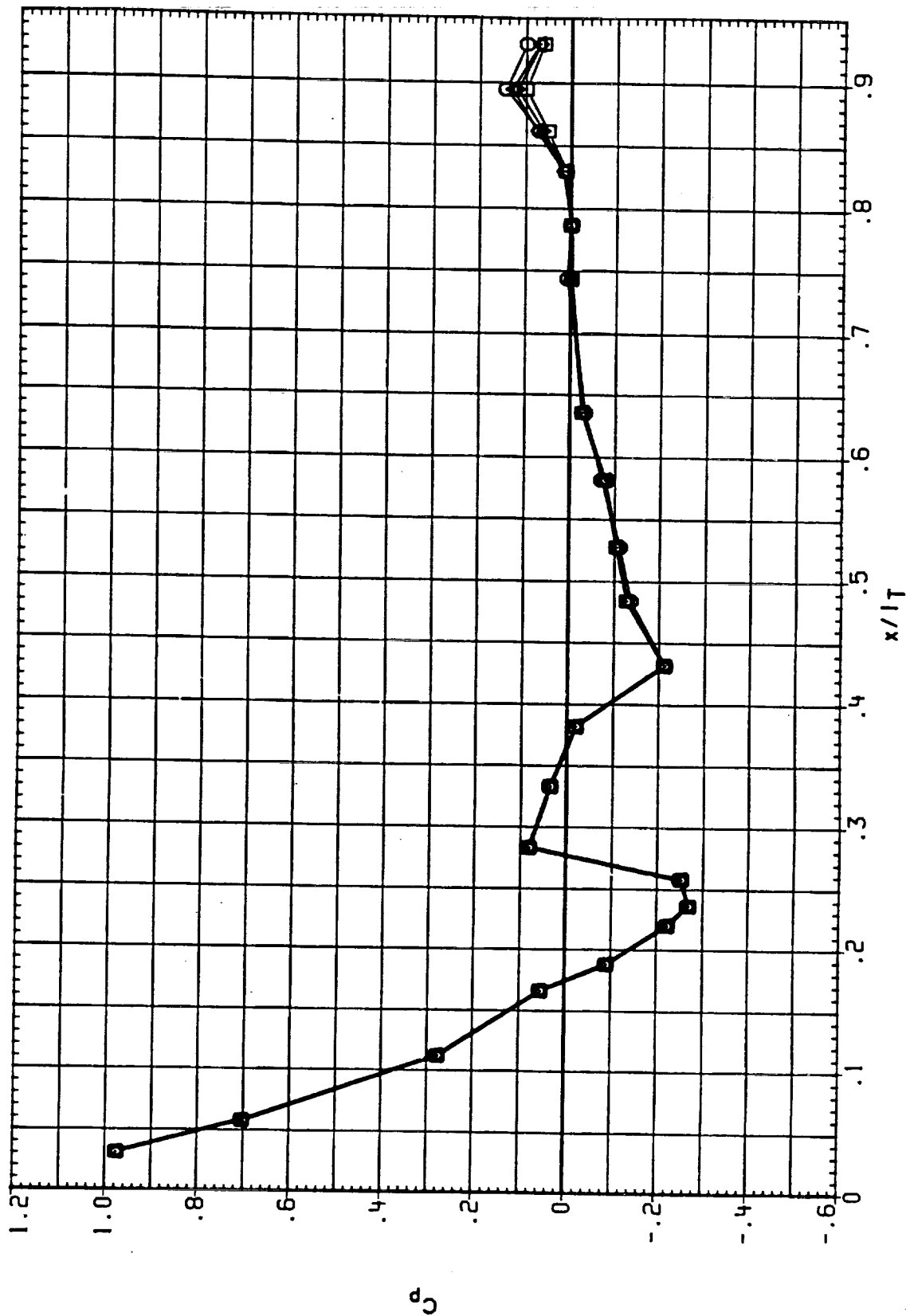


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 30.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT46)	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXTERNAL TANK	1.300	.000	10.000	9.000
(RCOT54)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.300	.000	10.000	5.000
(RCOT89)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.300	180.000	10.000	5.000
(RCOTC7)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.300	999.000	10.000	5.000

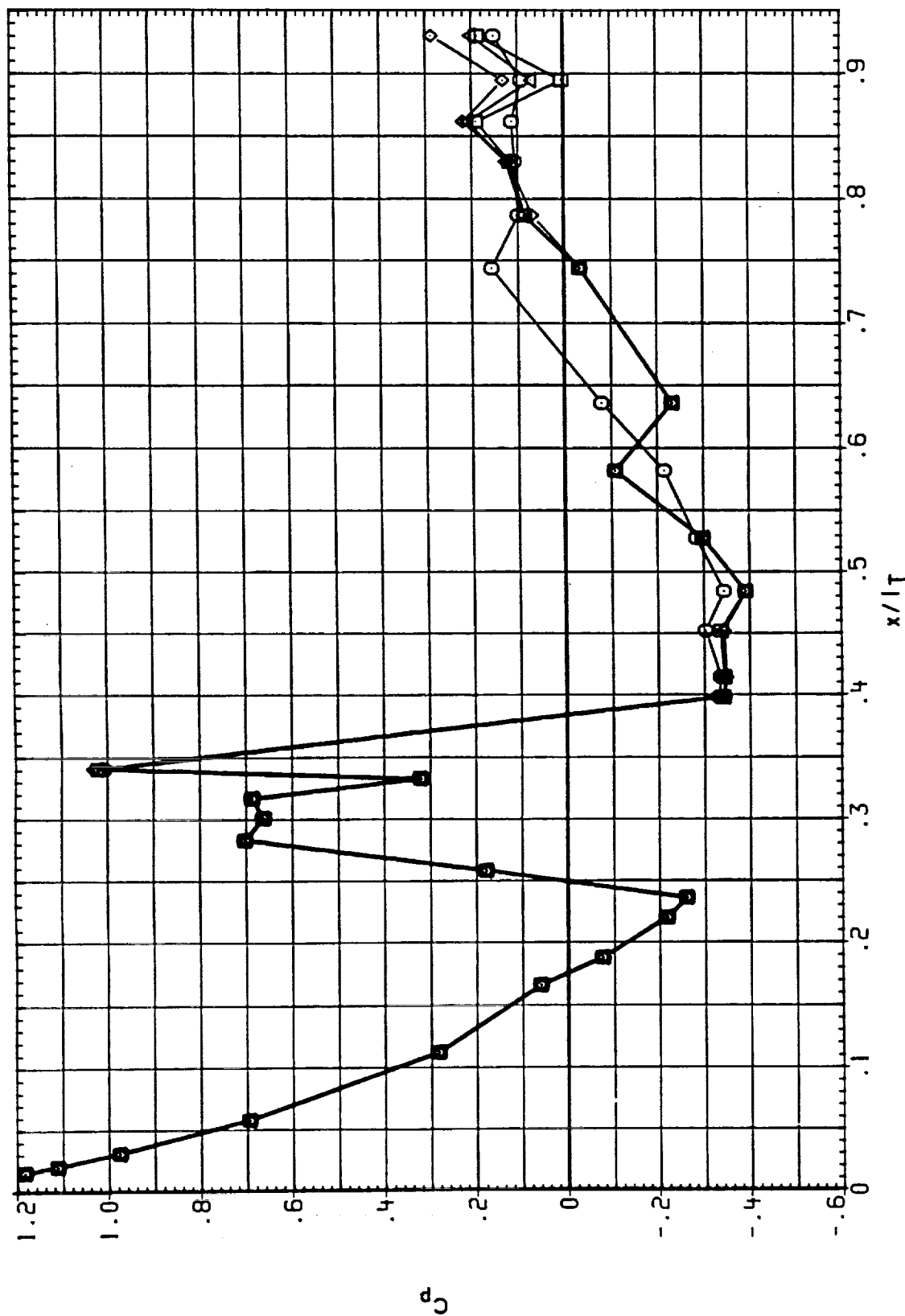


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 90.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT6)	□	IA613A, B/L OT+RSRM+PLUMES SI.2	-EXTERNAL TANK	1.300	.000	10.000	9.000
(RCOT5)	□	IA613A, B/L OT+ASRM+PLUMES SI.3	-EXTERNAL TANK	1.300	.000	10.000	5.000
(RCOT8)	◇	IA613A, B/L OT+ASRM+PLUMES SI.3	-EXTERNAL TANK	1.300	180.000	10.000	5.000
(RCOT7)	△	IA613A, B/L OT+ASRM+PLUMES SI.3	-EXTERNAL TANK	1.300	999.000	10.000	5.000

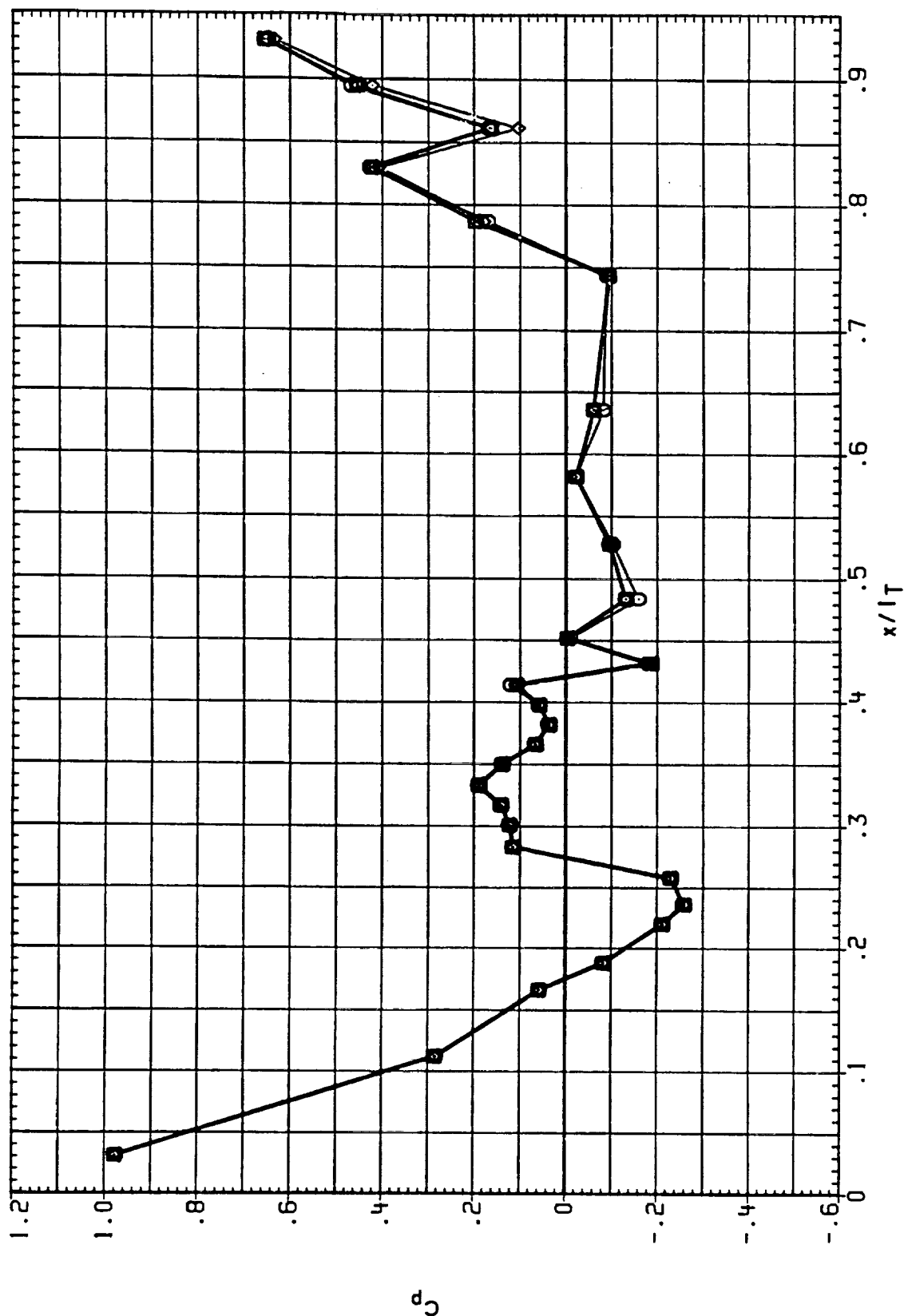


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT17)	□	IA613A.B/L OT+RSRH+PLUMES S1.2	-EXTERNAL TANK	1.350	.000	10.000	9.000
(RCOT55)	□	IA613A.B/L OT+ASRH+PLUMES S1.3	-EXTERNAL TANK	1.350	.000	10.000	5.000
(RCOT90)	◇	IA613A.B/L OT+ASRH+PLUMES S1.3	-EXTERNAL TANK	1.350	180.000	10.000	5.000
(RCOT108)	△	IA613A.B/L OT+ASRH+PLUMES S1.3	-EXTERNAL TANK	1.350	999.000	10.000	5.000

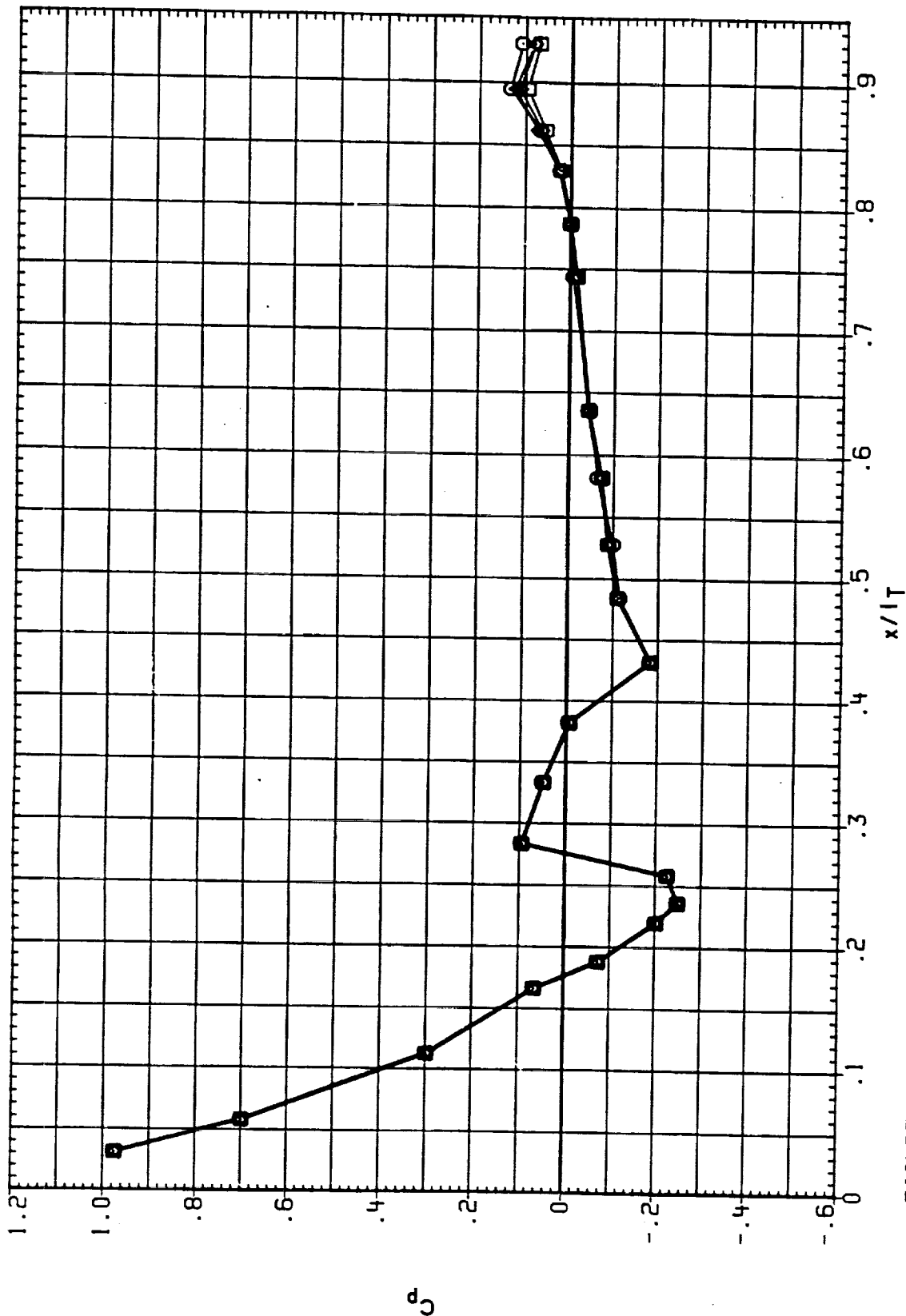


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 30.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	ICABOX	IB-ELV	OB-ELV
(RCOT7)	○	IA613A, B/L OT+SRM+PLUMES SI.2	-EXTERNAL TANK	1.350	.000	10.000	9.000
(RCOT55)	□	IA613A, B/L OT+SRM+PLUMES SI.3	-EXTERNAL TANK	1.350	.000	10.000	5.000
(RCOT90)	◇	IA613A, B/L OT+SRM+PLUMES SI.3	-EXTERNAL TANK	1.350	180.000	10.000	5.000
(RCOTC8)	△	IA613A, B/L OT+SRM+PLUMES SI.3	-EXTERNAL TANK	1.350	999.000	10.000	5.000

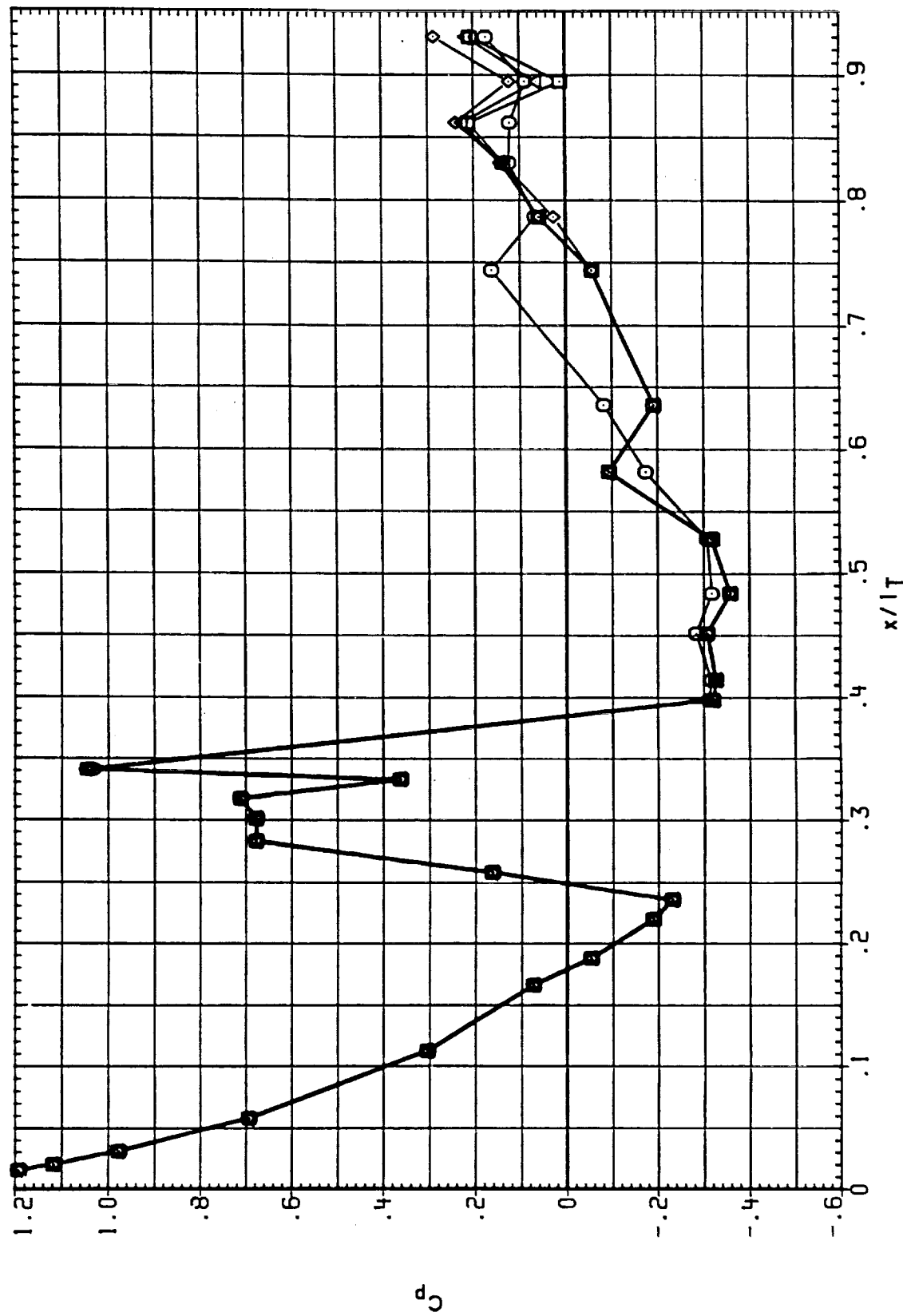


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H7)	□	IA613A.B/L OT-PSRH-PLUMES SI.2	-EXTERNAL TANK	1.350	.000	10.000	9.000
(RC01S5)	□	IA613A.B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.350	.000	10.000	5.000
(RC0190)	◇	IA613A.B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.350	180.000	10.000	5.000
(RC01C8)	△	IA613A.B/L OT-ASRH-PLUMES SI.3	-EXTERNAL TANK	1.350	999.000	10.000	5.000

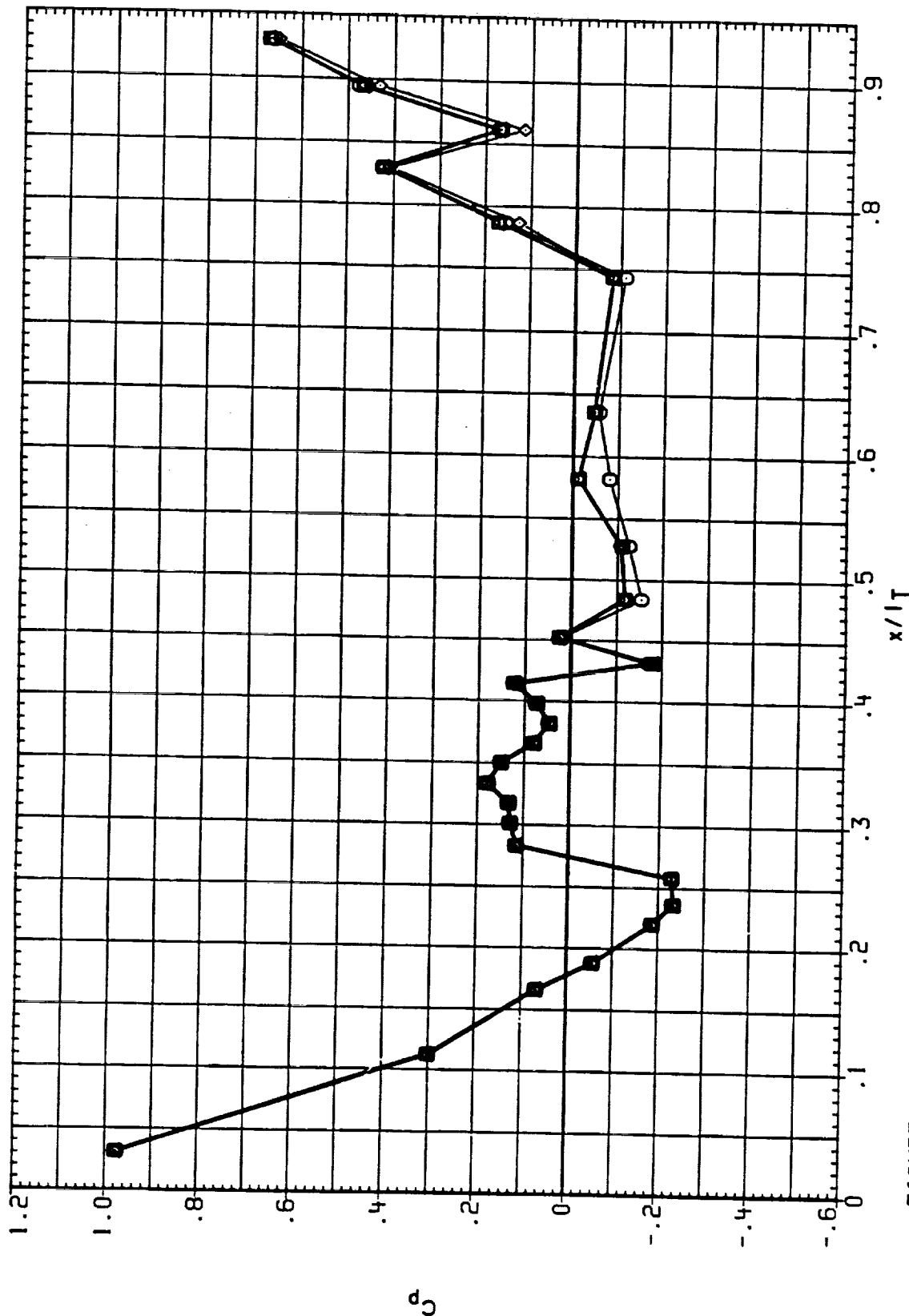


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK

BETA = .000 PHI = 135.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RCOT1H8)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	1.400	.000	10.000	9.000
(RCOT156)	○	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.400	.000	10.000	5.000
(RCOT191)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.400	180.000	10.000	5.000
(RCOT1C9)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.400	999.000	10.000	5.000

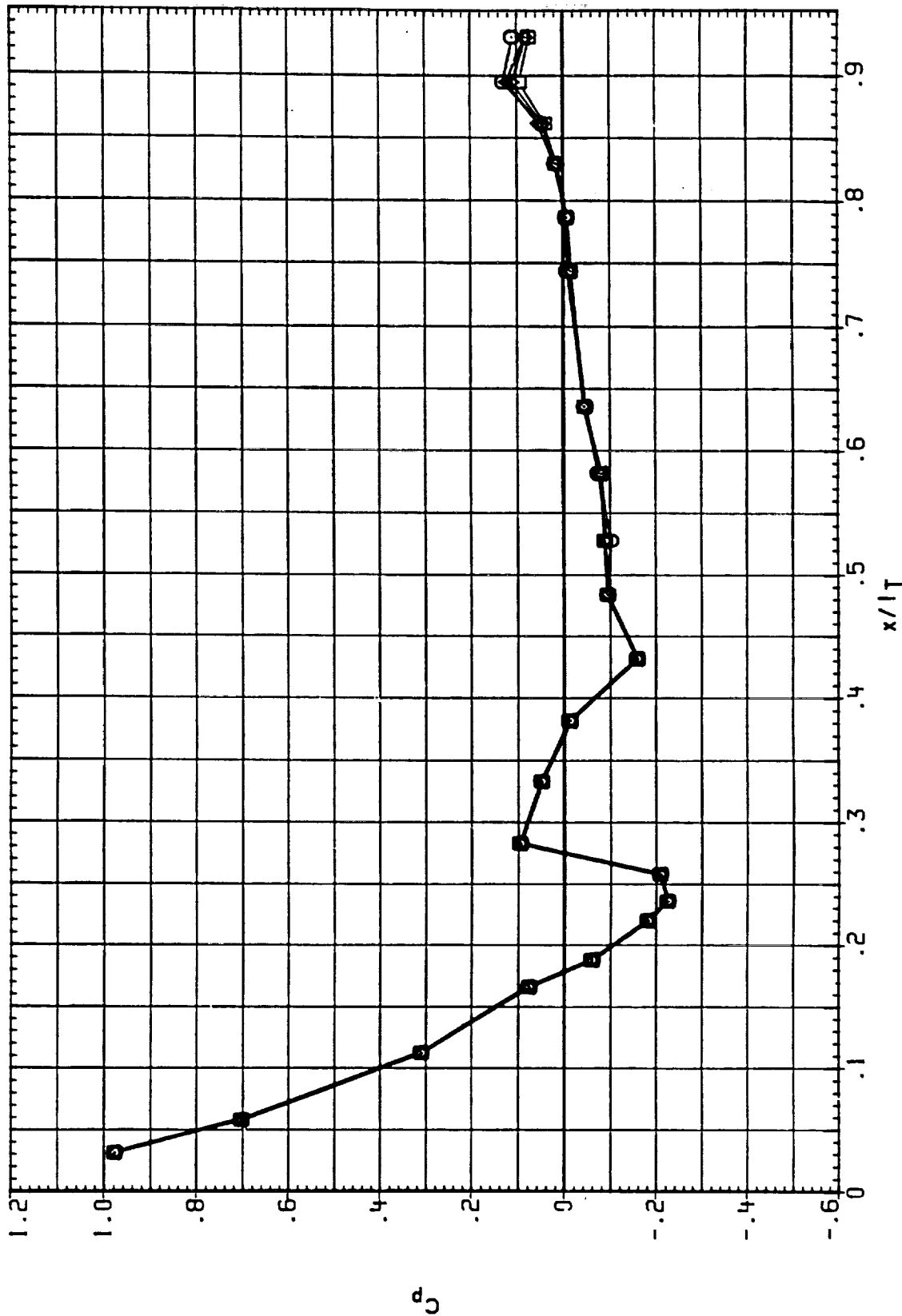


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE4BOX	IB-ELV	OB-ELV
(RC01H8)	○	IA613A.B/L 01*ASRH*PLUMES SI.2	1.400	.000	10.000	9.000
(RC0156)	□	IA613A.B/L 01*ASRH*PLUMES SI.3	1.400	.000	10.000	5.000
(RC0191)	△	IA613A.B/L 01*ASRH*PLUMES SI.3	1.400	180.000	10.600	5.000
(RC01C9)	◇	IA613A.B/L 01*ASRH*PLUMES SI.3	1.400	999.000	10.000	5.000

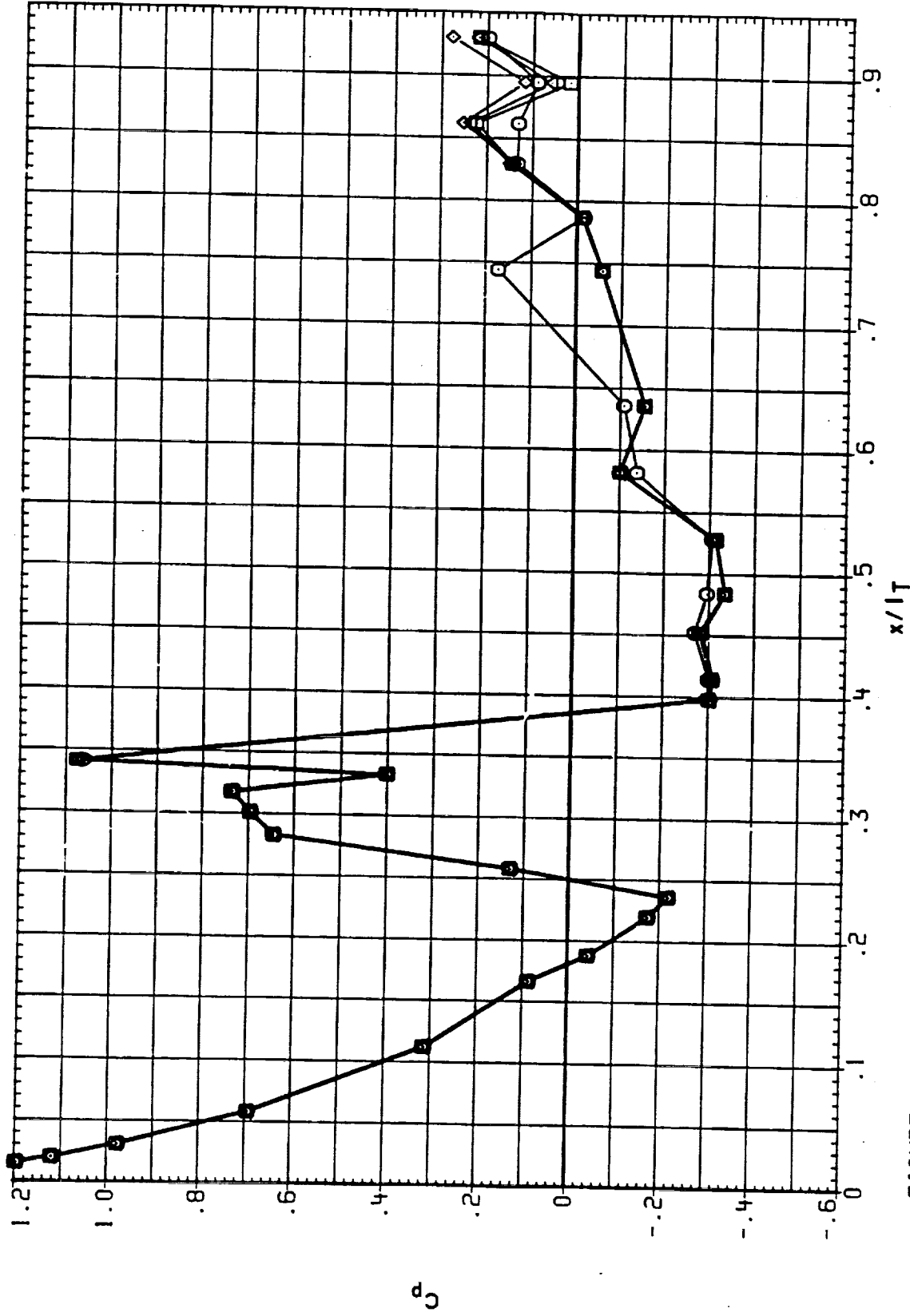


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000    PHI = 90.000    ALPHA = .000    PAGE 212

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(PC01H3)	○	IA613A-B/L OT-ASRM-PLUMES S1.2	-EXTERNAL TANK	1.400	.000	10.000	9.000
(PC0156)	○	IA613A-B/L OT-ASRM-PLUMES S1.3	-EXTERNAL TANK	1.400	.000	10.000	5.000
(PC0191)	◇	IA613A-B/L OT-ASRM-PLUMES S1.3	-EXTERNAL TANK	1.400	180.000	10.000	5.000
(PC01C9)	△	IA613A-B/L OT-ASRM-PLUMES S1.3	-EXTERNAL TANK	1.400	999.000	10.000	5.000

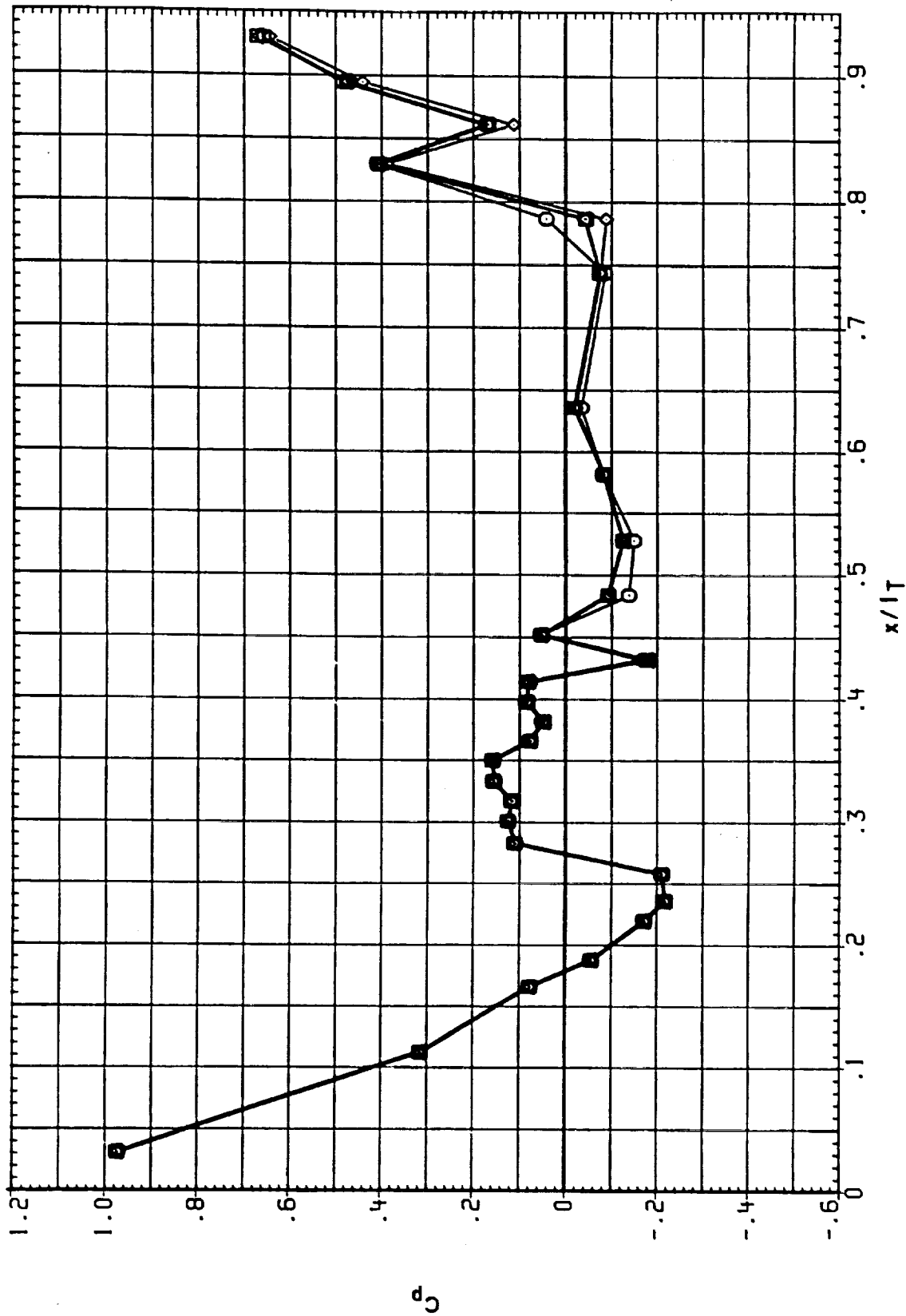


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 135.000 ALPHA = .000  
 EXTERNAL TANK

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC01H9)  $\square$  IA613A-B/L OT+PSRM+PLUES SI.2  
 (RC0157)  $\square$  IA613A-B/L OT+ASRM+PLUES SI.3  
 (RC0192)  $\square$  IA613A-B/L OT+ASRM+PLUES SI.3  
 (RC01D0)  $\triangle$  IA613A-B/L OT+ASRM+PLUES SI.3

-EXTERNAL TANK  
 -EXTERNAL TANK  
 -EXTERNAL TANK

MACH IEABOX IB-ELV OB-ELV  
 1.550 .000 10.000 9.000  
 1.550 .000 10.000 5.000  
 1.550 180.000 10.000 5.000  
 1.550 999.000 10.000 5.000

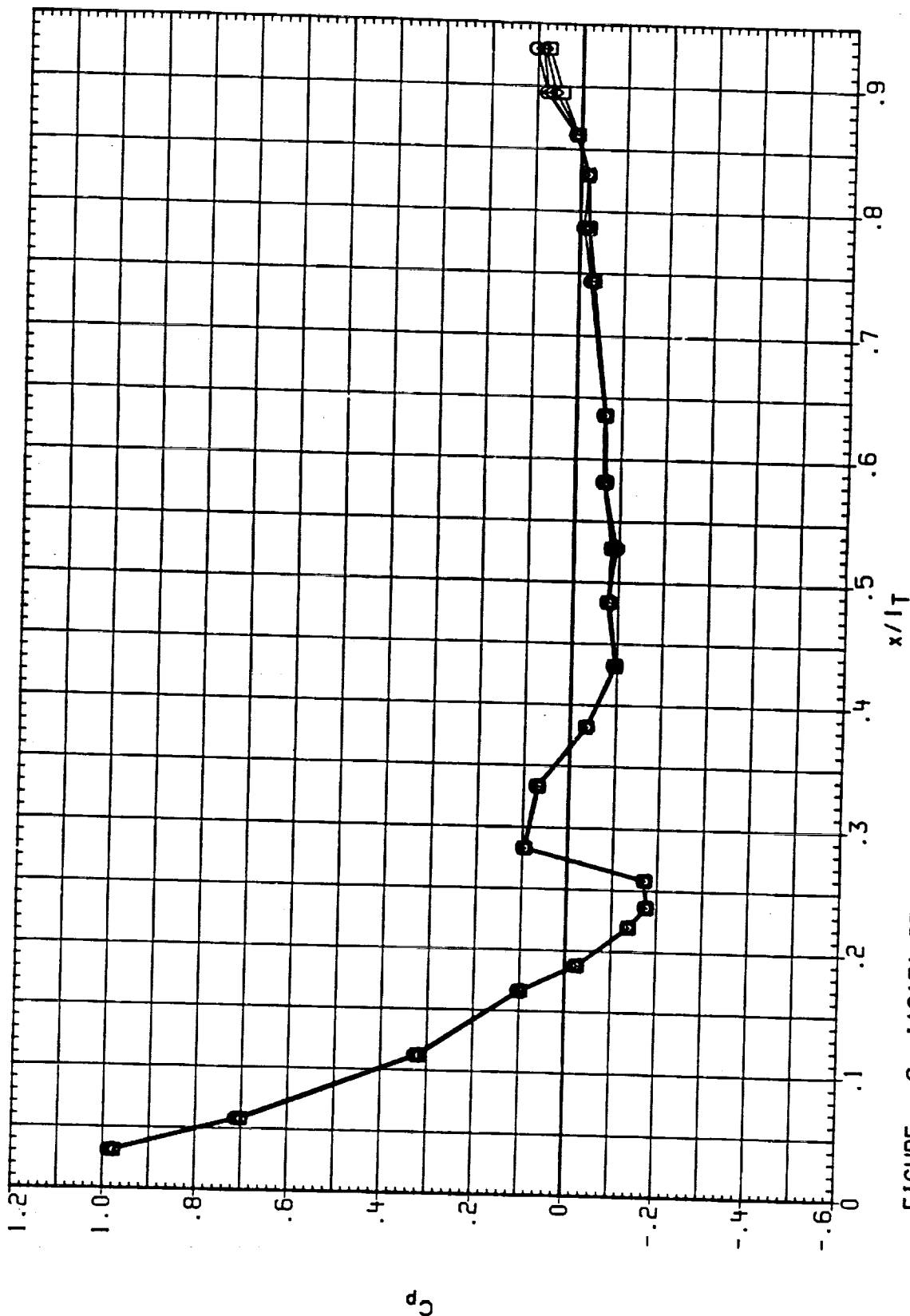


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 30.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXTERNAL TANK	MACH	IEABOX	IB-ELV	OB-ELV
(RC01H9)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-EXTERNAL TANK	1.550	.000	10.000	9.000
(RC0157)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.550	.000	10.000	5.000
(RC0192)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.550	180.000	10.000	5.000
(RC0100)		IA613A.B/L OT+ASRM+PLUMES S1.3	-EXTERNAL TANK	1.550	999.000	10.000	5.000

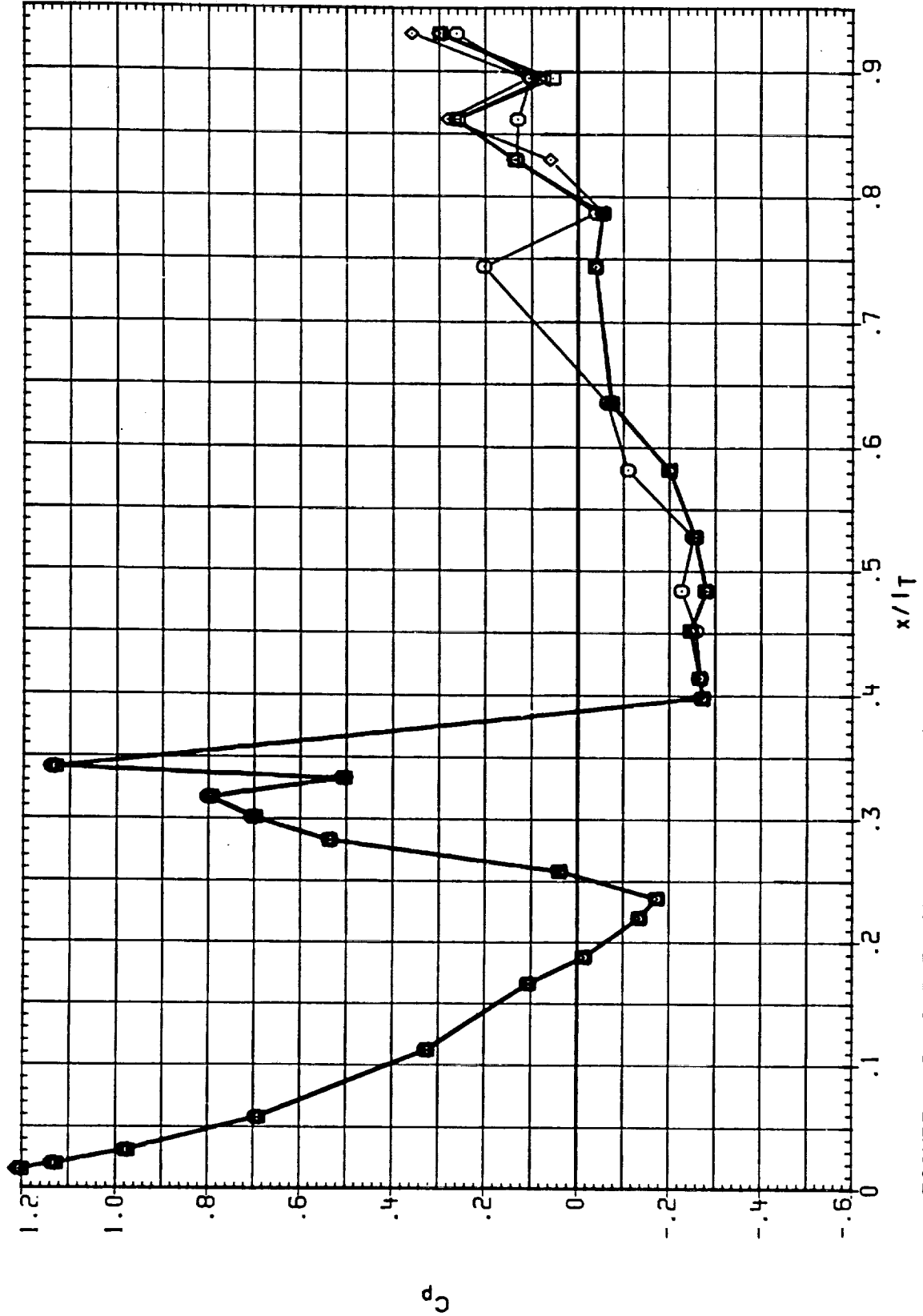


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RC01H9)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	1.550	.000	10.000	9.000
(RC0157)	□	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	.000	10.000	5.000
(RC0192)	◇	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0100)	△	IA613A, B/L 01+ASRH+PLUMES S1.3	1.550	999.000	10.000	5.000

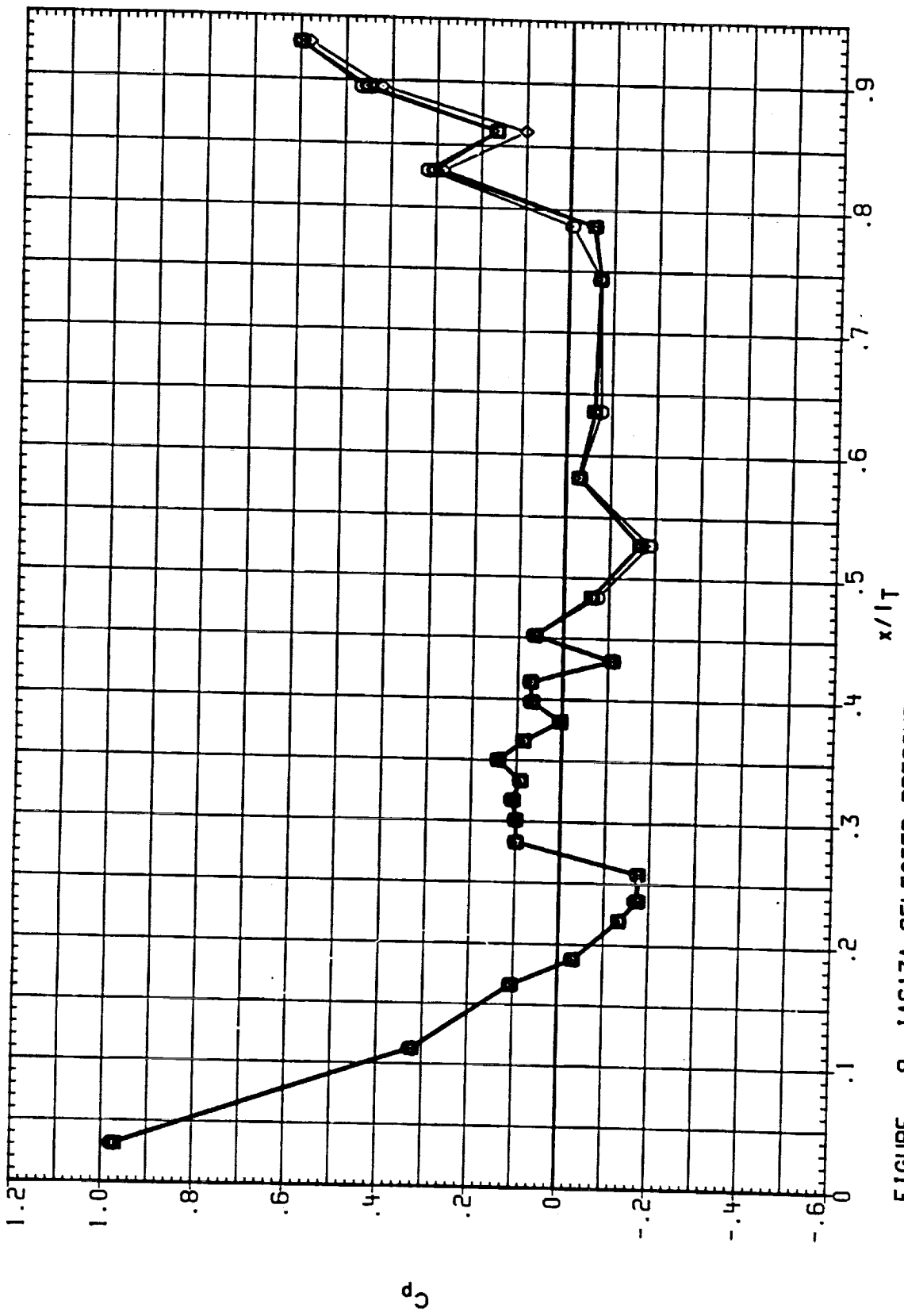


FIGURE 8 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 135.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA15)	□	IA613A, B/L OT+RSRH+PLUES S1.2	.600	.000	10.000	9.000
(RCOA42)	□	IA613A, B/L OT+ASRH+PLUES S1.2	.600	.000	10.000	9.000
(RCOA80)	△	IA613A, B/L OT+ASRH+PLUES S1.2	.600	180.000	10.000	9.000
(RCOA11)	△	IA613A, B/L OT+ASRH+PLUES S1.2	.600	999.000	10.000	5.000

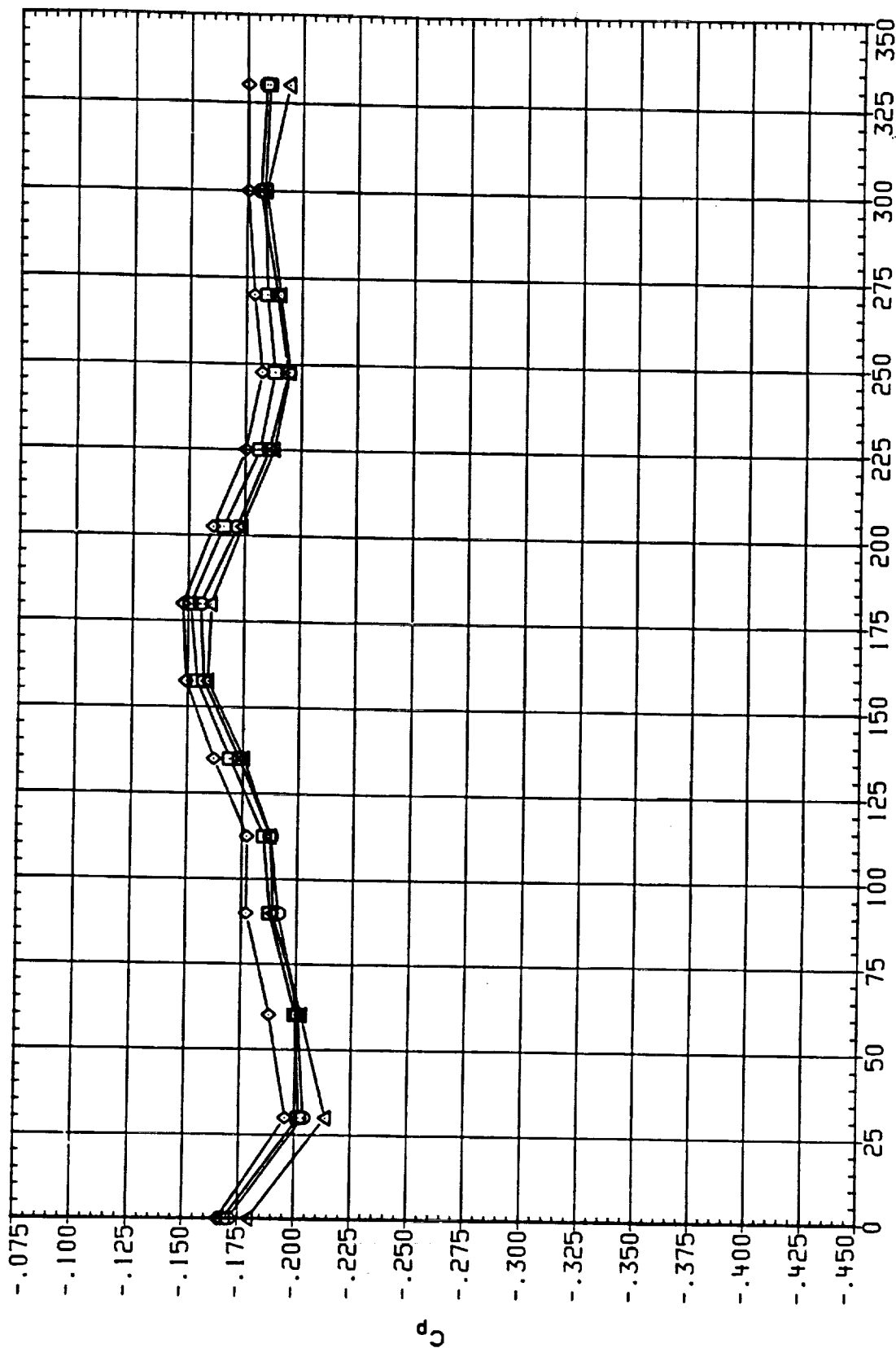


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE  
BETA = .300 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCA151)	○	IA613A,B/L 01+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCA421)	□	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RCA801)	◇	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RCA811)	△	IA613A,B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

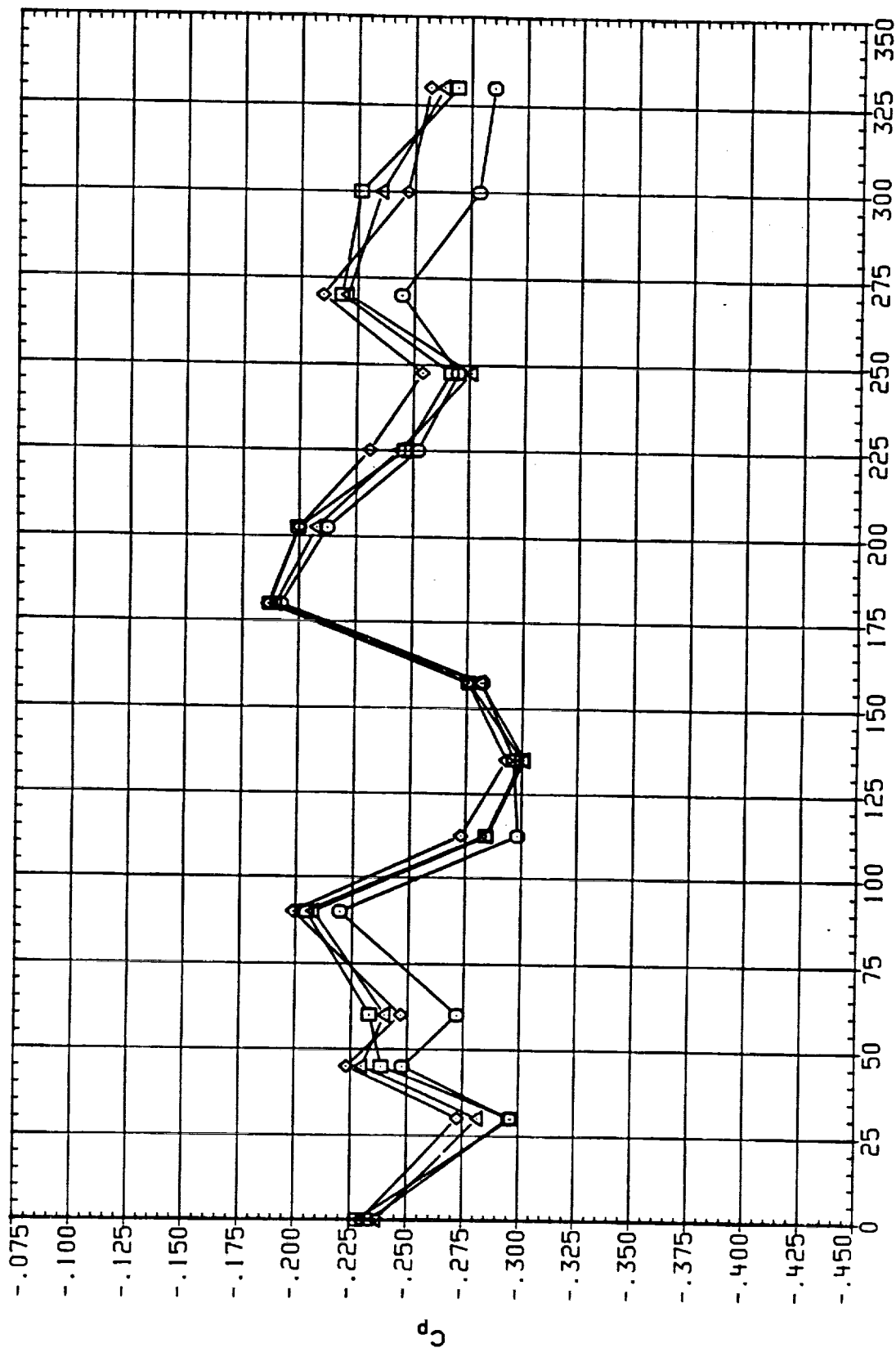


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK BASE  
 BETA = .000 RADIUS = 156.560 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA15)	○	IA613A, B/L 01, RSRH, PLUMES SI.2	.800	.000	10.000	9.000
(RCOA43)	○	IA613A, B/L 01, ASRH, PLUMES SI.2	.800	.000	10.000	9.000
(RCOA81)	◇	IA613A, B/L 01, ASRH, PLUMES SI.2	.800	180.000	10.000	9.000

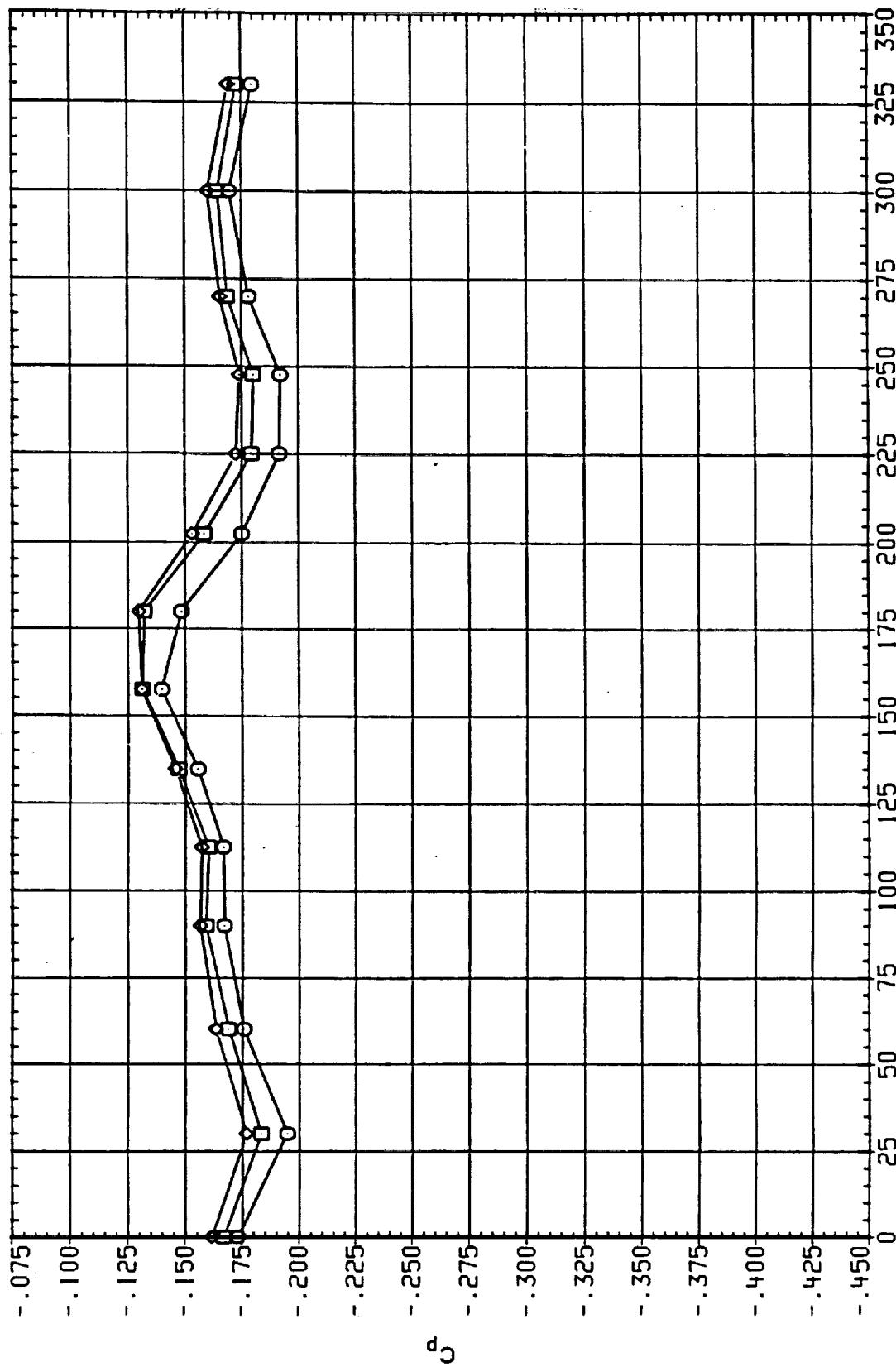


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000      EXTERNAL TANK BASE      RADIUS = 77.480      ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA16)	○	IA613A.B/L OT+PSRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOA13)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOA81)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.800	180.000	10.000	9.000

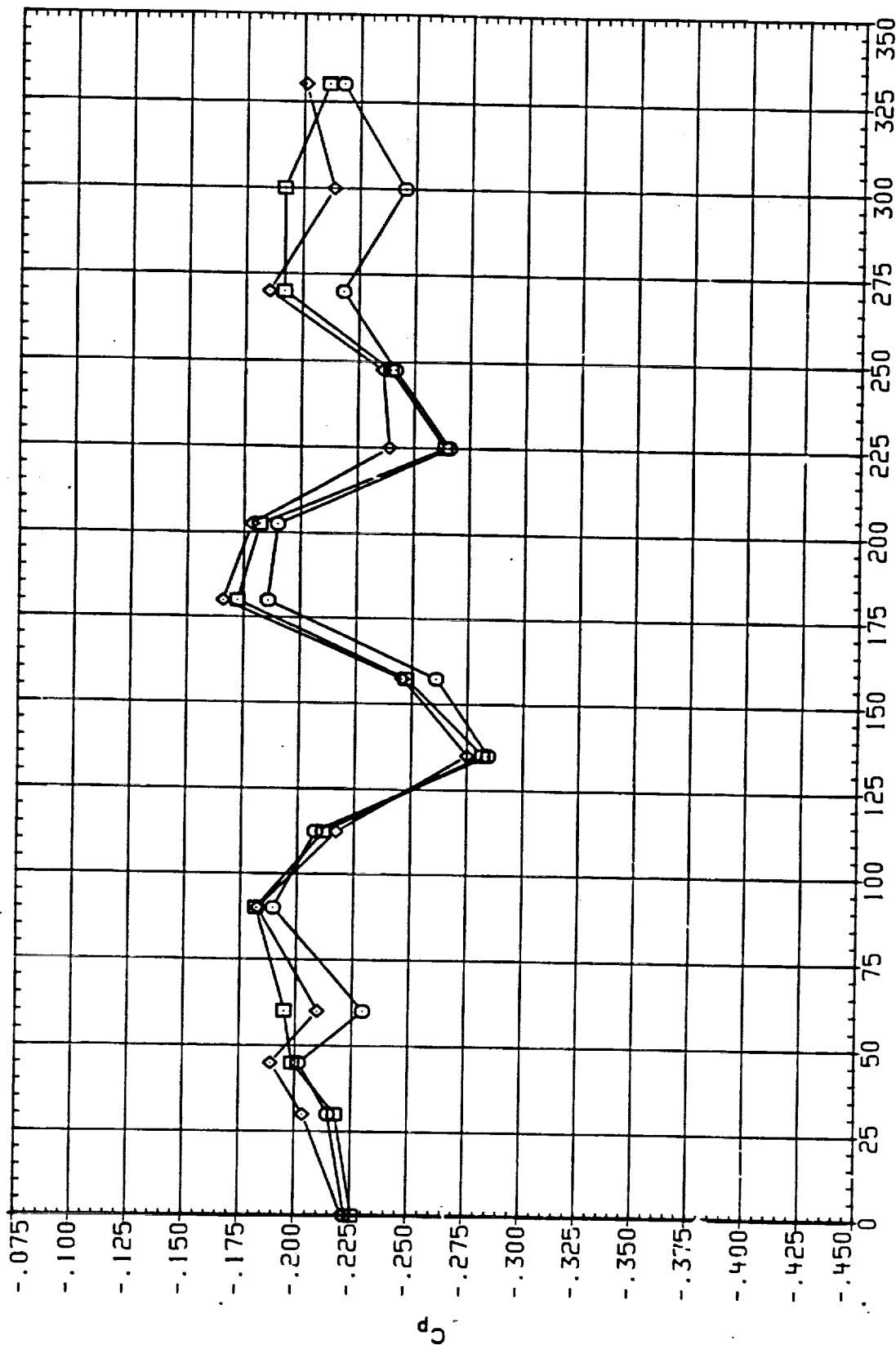


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCA17)	○	IA613A, B/L 01+RSRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCA44)	□	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	.000	10.000	9.000
(RCA82)	◇	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	180.000	10.000	9.000
(RCA82)	△	IA613A, B/L 01+ASRH+PLUMES S1.2	.900	999.000	10.000	5.000

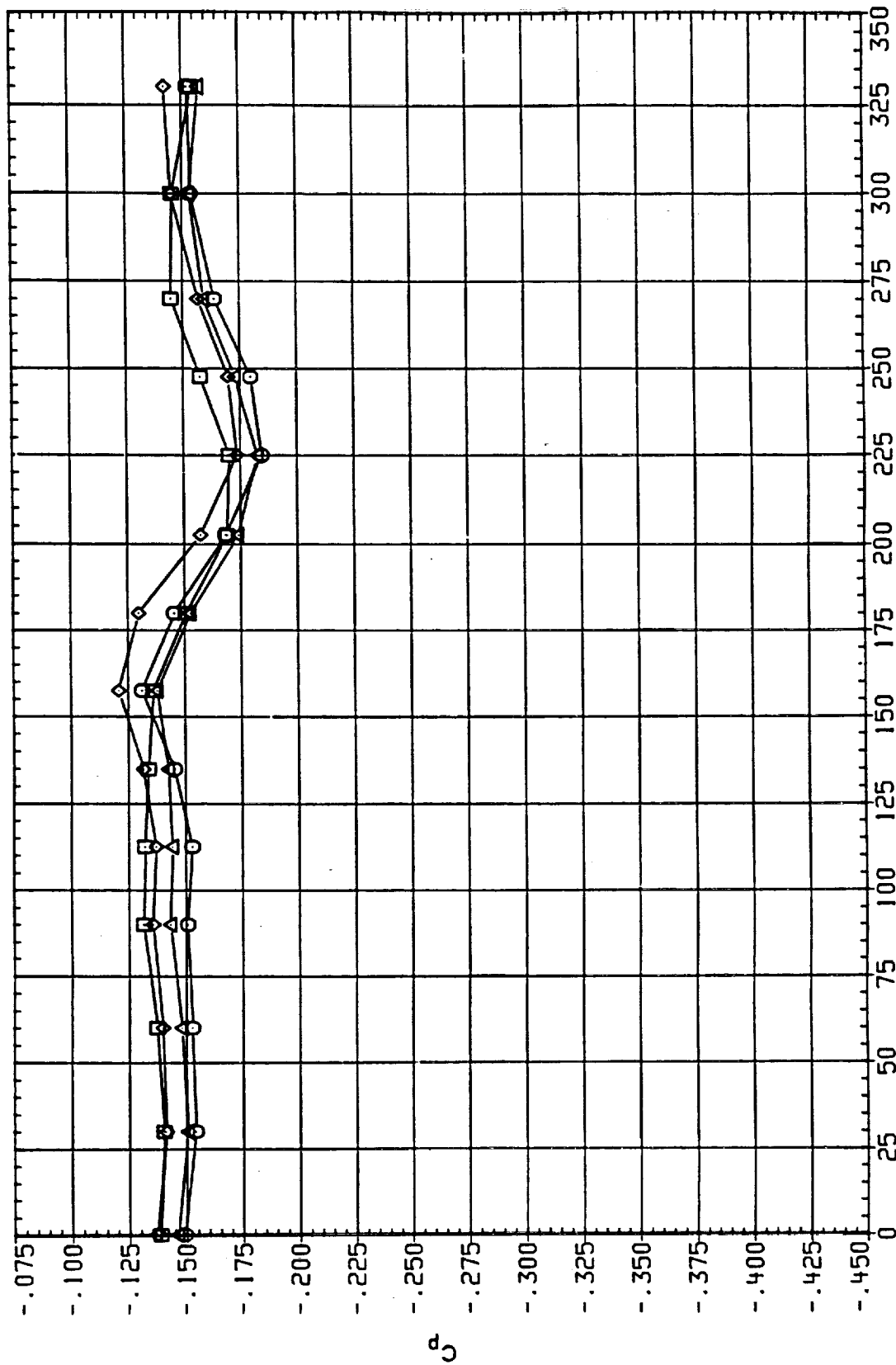


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA17)	□	IA613A.B/L OT.PSRM.PLUHES S1.2	.900	.000	10.000	9.000
(RCOA44)	○	IA613A.B/L OT.ASRM.PLUHES S1.2	.900	.000	10.000	9.000
(RCOAB2)	◇	IA613A.B/L OT.ASRM.PLUHES S1.2	.900	180.000	10.000	9.000
(RCOAC2)	△	IA613A.B/L OT.ASRM.PLUHES S1.2	.900	999.000	10.000	5.000

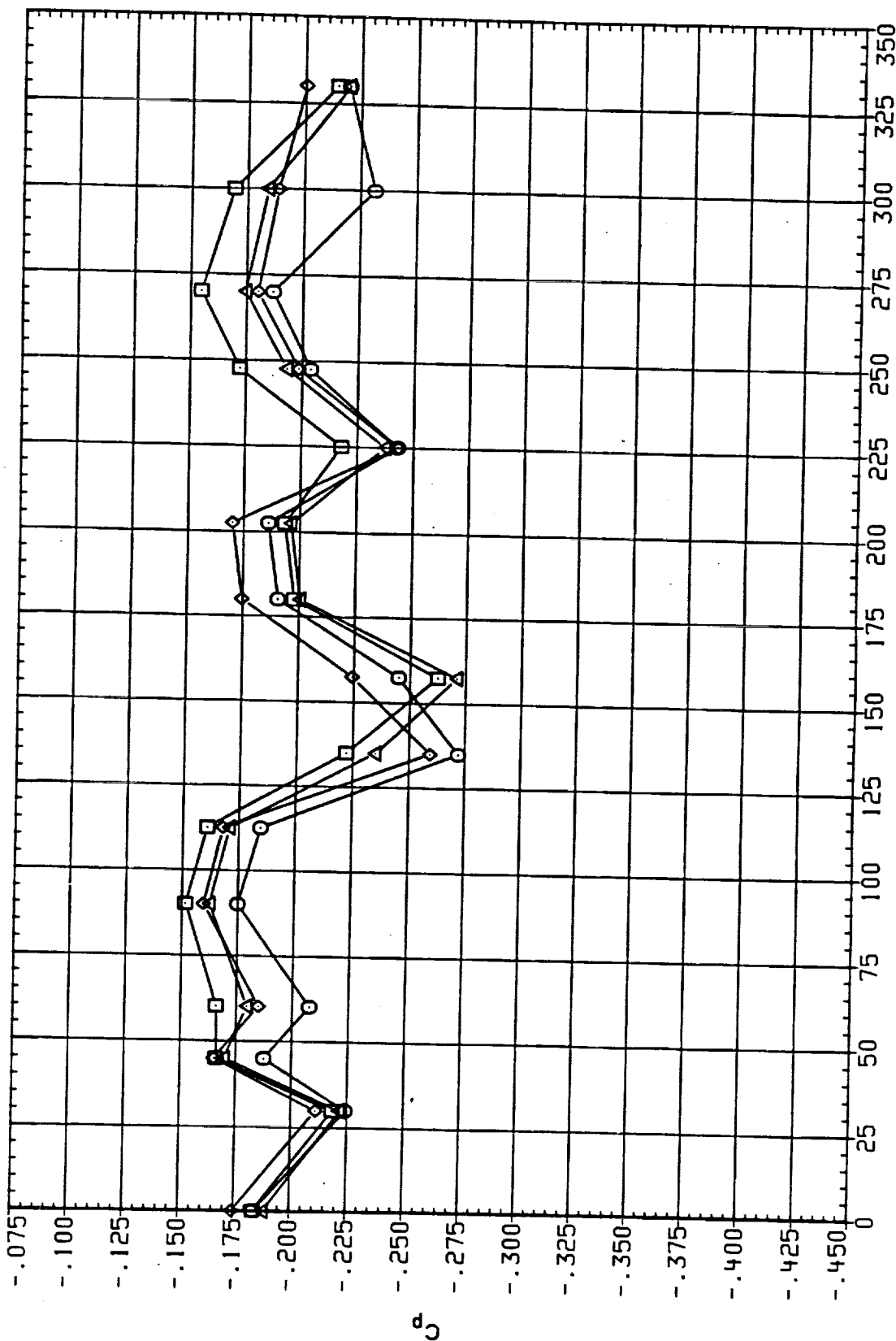


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 RADIUS = 156.560 ALPHA = .000  
 EXTERNAL TANK BASE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA18)	□	IA613A.B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA19)	○	IA613A.B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCOA20)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

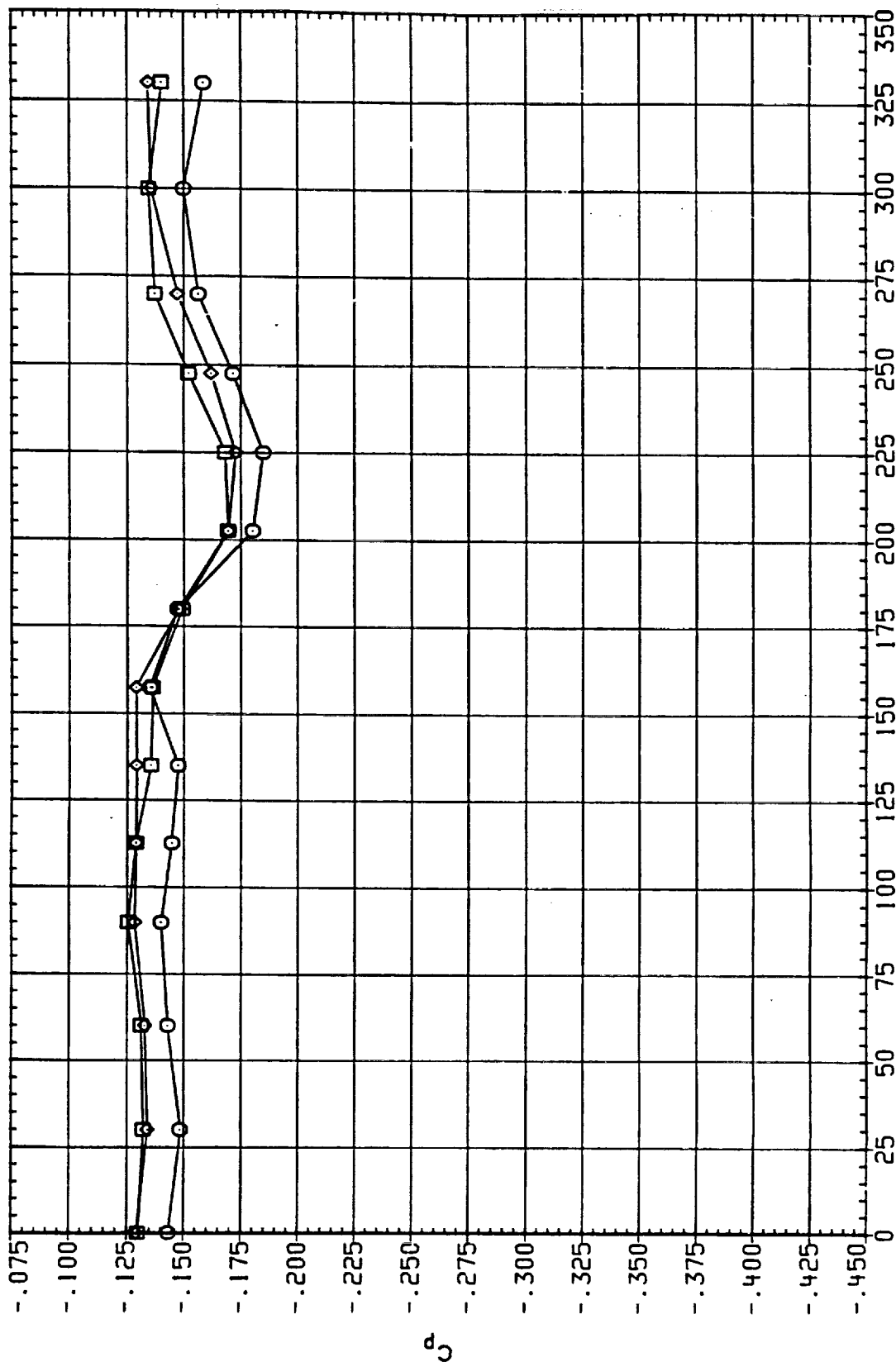


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCOA18)	□	IA613A, B/L OT+RSRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOA5)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.950	.000	10.000	9.000
(RCOA83)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.950	180.000	10.000	9.000

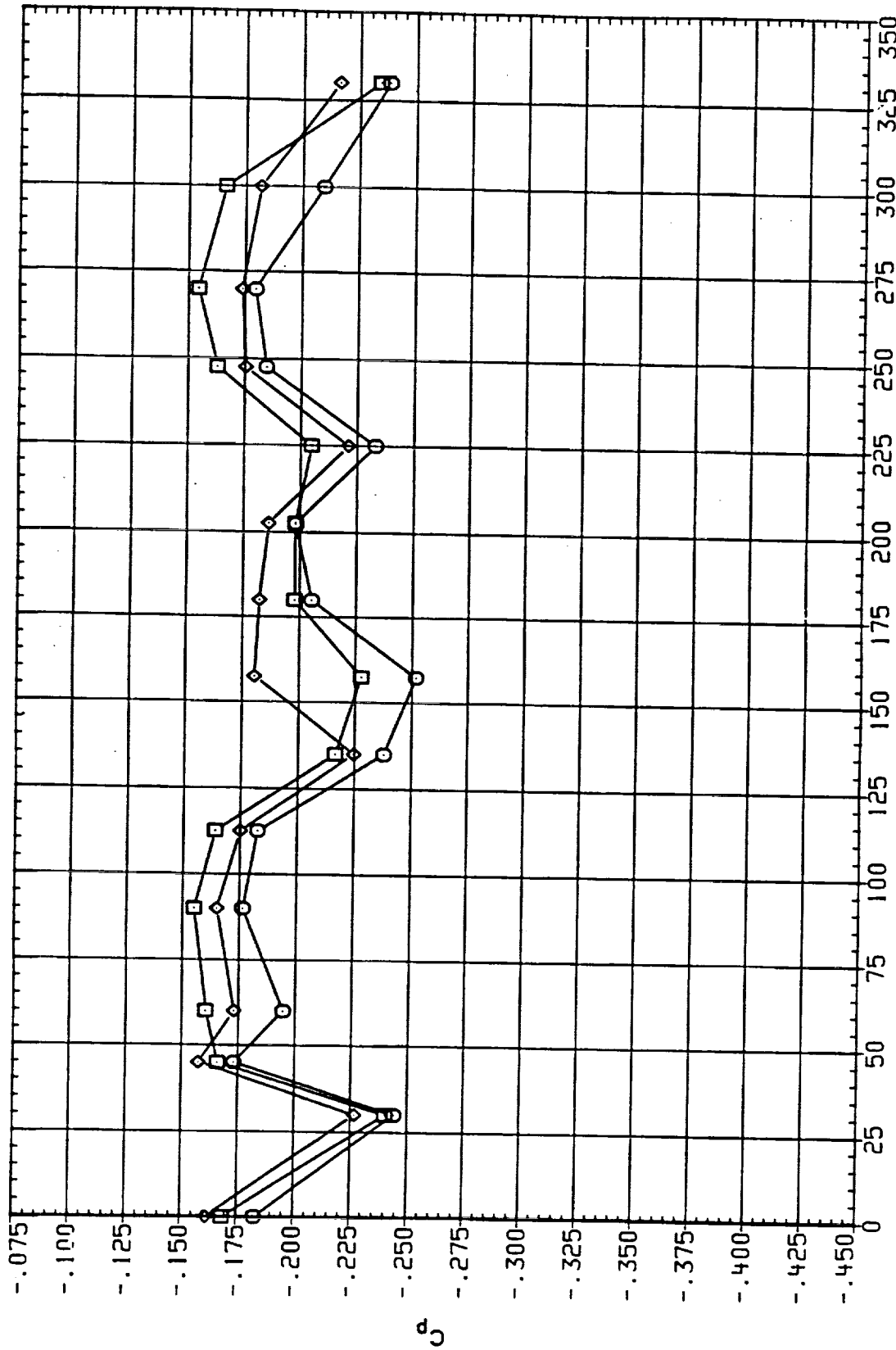


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA19)	□	IA613A.8/L OT+RSRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOA46)	○	IA613A.8/L OT+ASRM+PLUMES SI.2	1.050	.000	10.000	9.000
(RCOA84)	◇	IA613A.8/L OT+ASRM+PLUMES SI.2	1.050	180.000	10.000	9.000
		-EXT. TANK BASE				
		-EXT. TANK BASE				
		-EXT. TANK BASE				

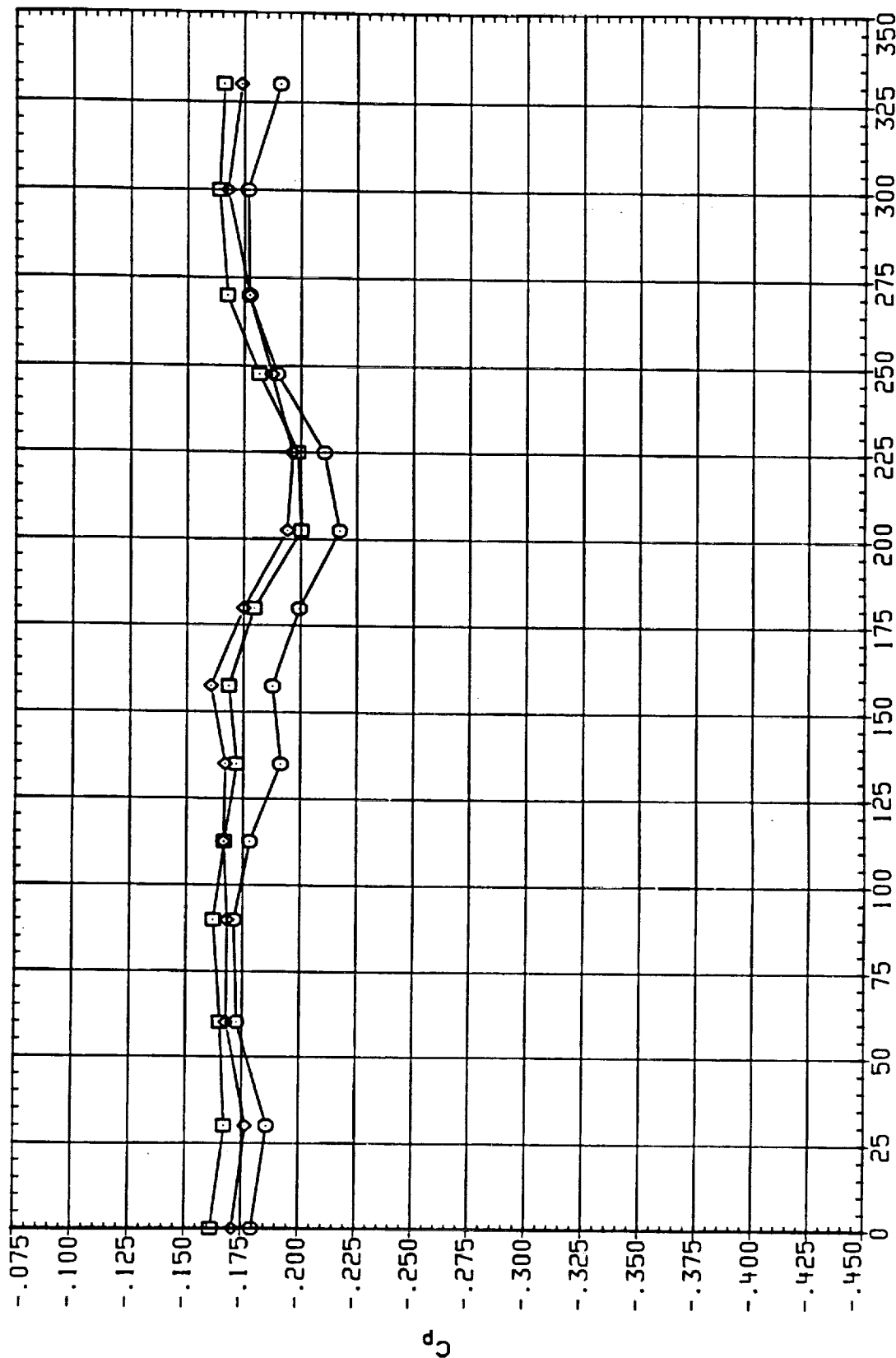


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXT. TANK BASE	MACH	IEABOX	IB-ELV	OB-ELV
IRCOA191	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXT. TANK BASE	1.050	.000	10.000	9.000
IRCOA461	○	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXT. TANK BASE	1.050	.000	10.000	9.000
IRCOA841	◇	IA613A.B/L OT+ASRM+PLUMES S1.2	-EXT. TANK BASE	1.050	180.000	10.000	9.000

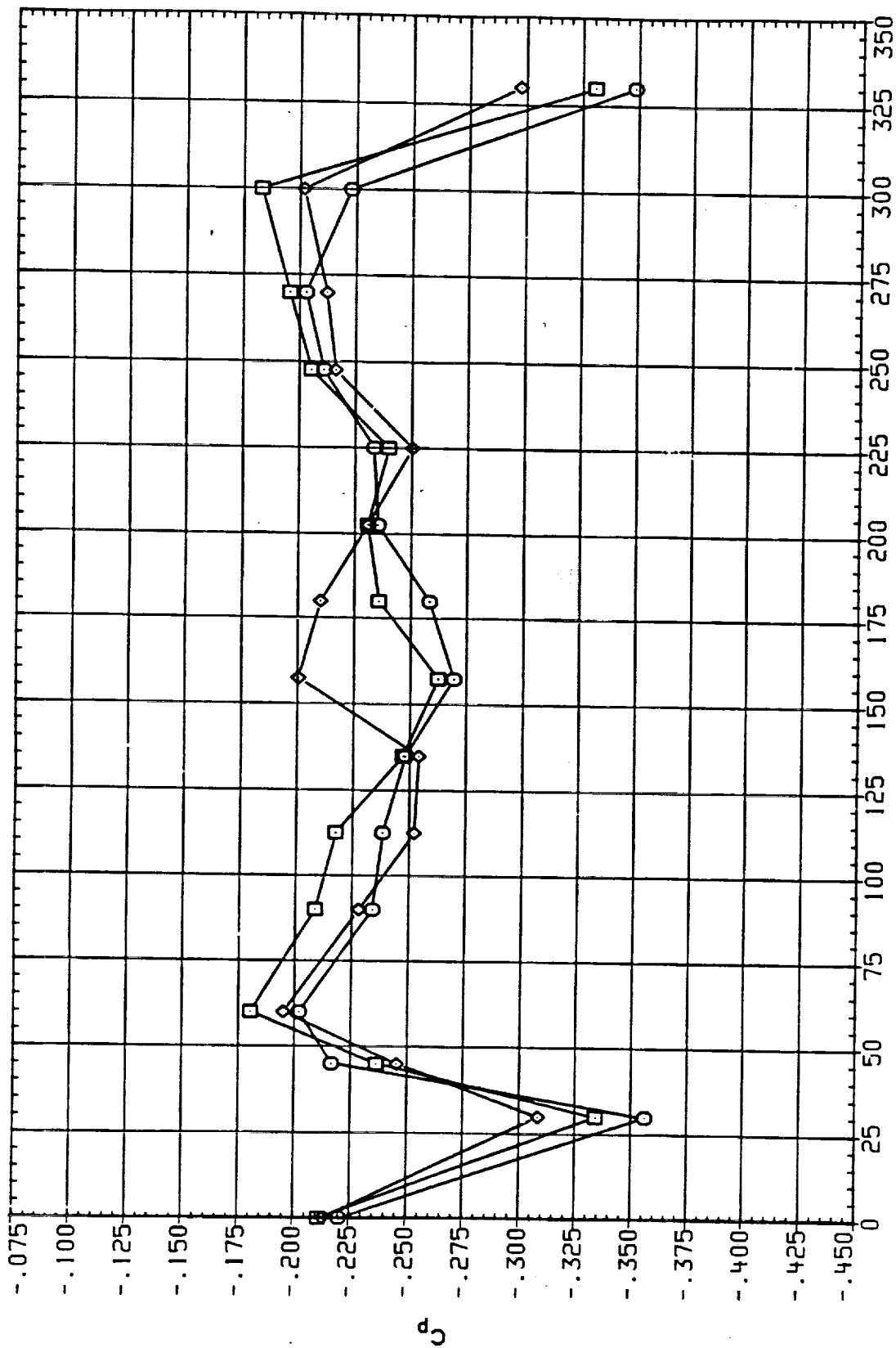


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE  
BETA = .000 RADIUS = 156.560 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE-ABOX	IB-ELV	OB-ELV
(RCA20)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCA47)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	.000	10.000	9.000
(RCA85)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCA83)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	1.100	999.000	10.000	5.000

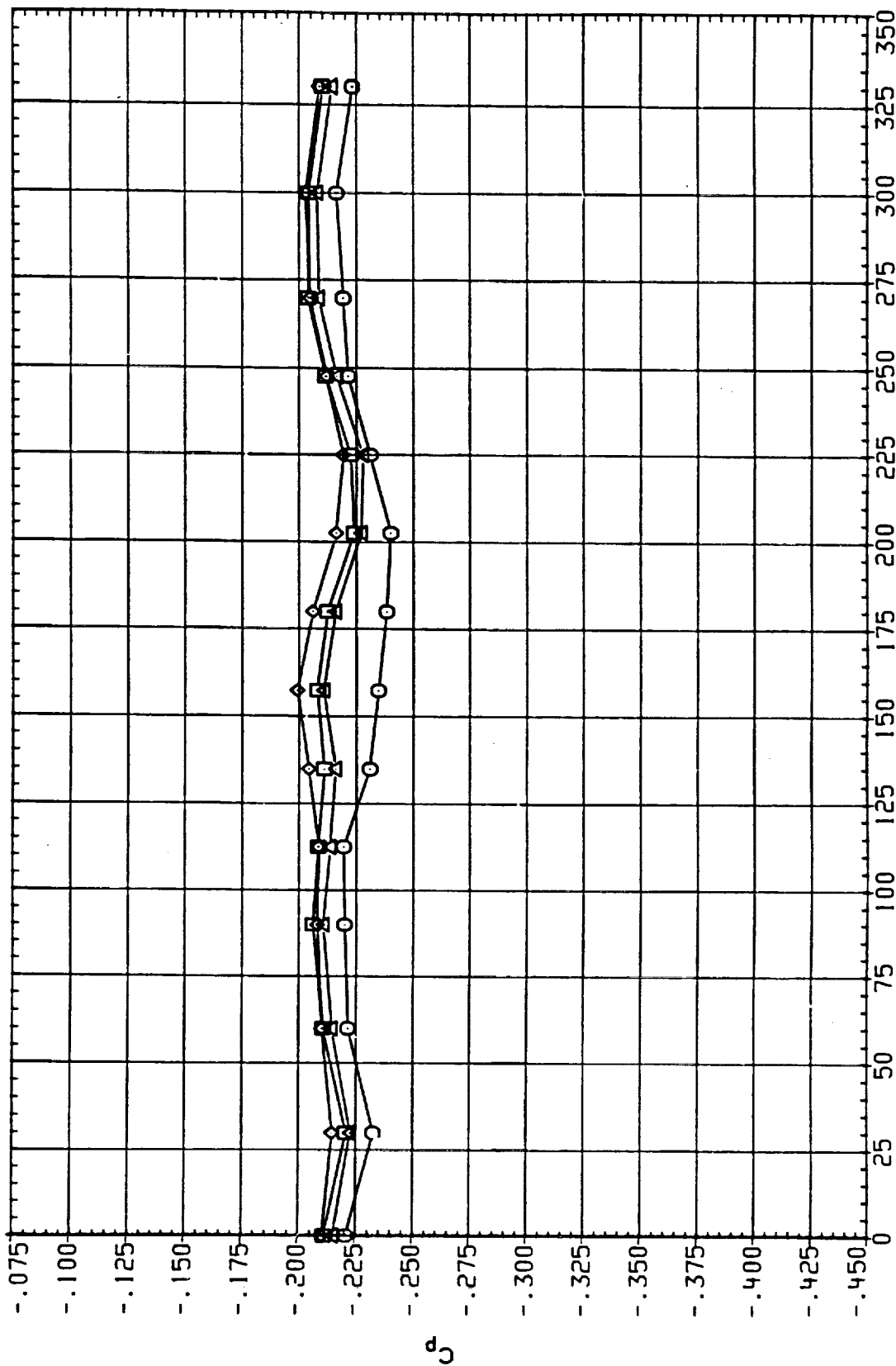


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCA020)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCA047)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	.000	10.000	9.000
(RCA085)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	180.000	10.000	9.000
(RCA0C3)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	1.100	999.000	10.000	5.000

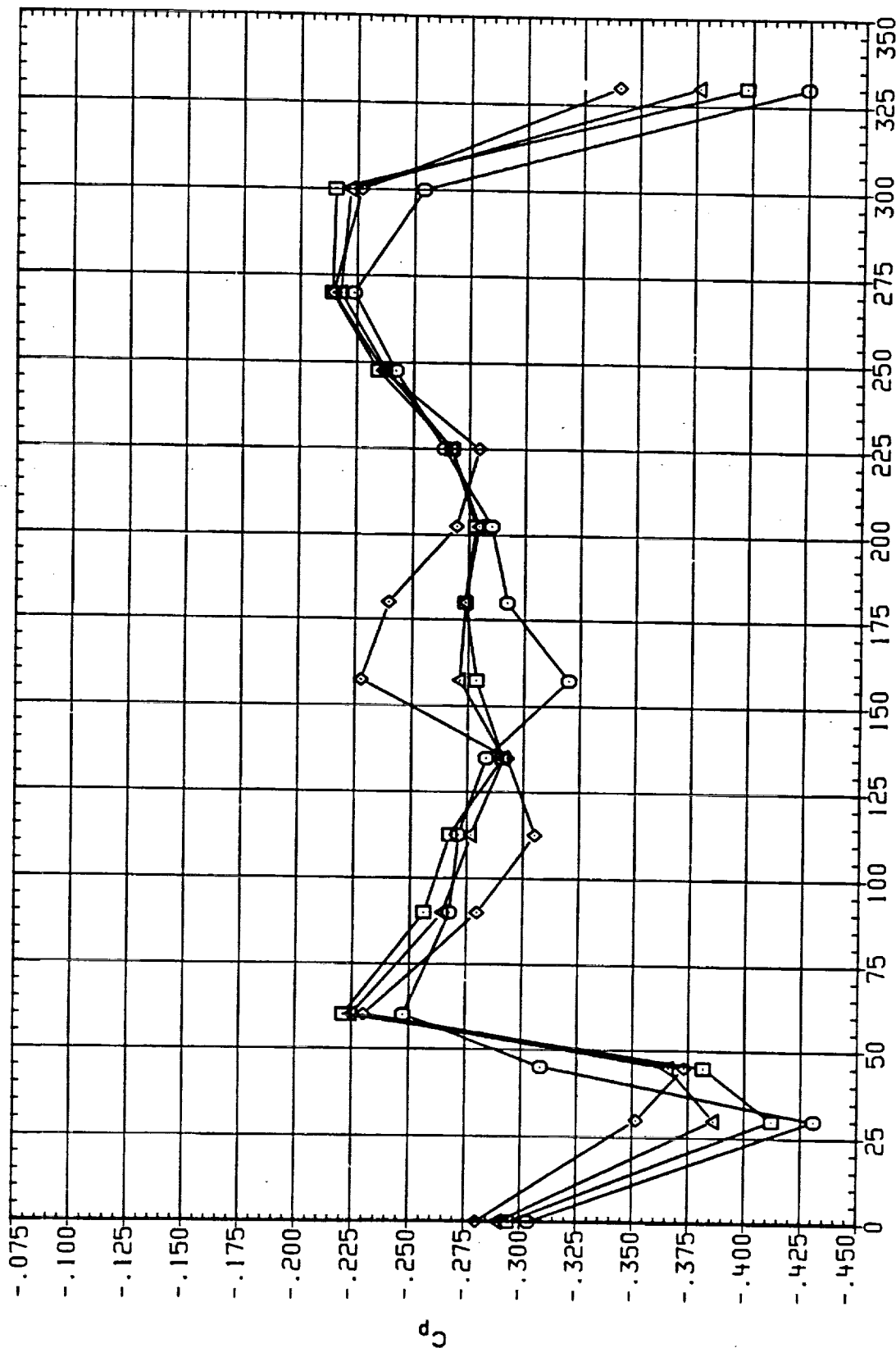


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(R0A21)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.150	.000	10.000	9.000
(R0A48)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.150	.000	10.000	9.000
(R0A86)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	1.150	180.000	10.000	9.000
(X0A04)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	1.150	999.000	10.000	5.000

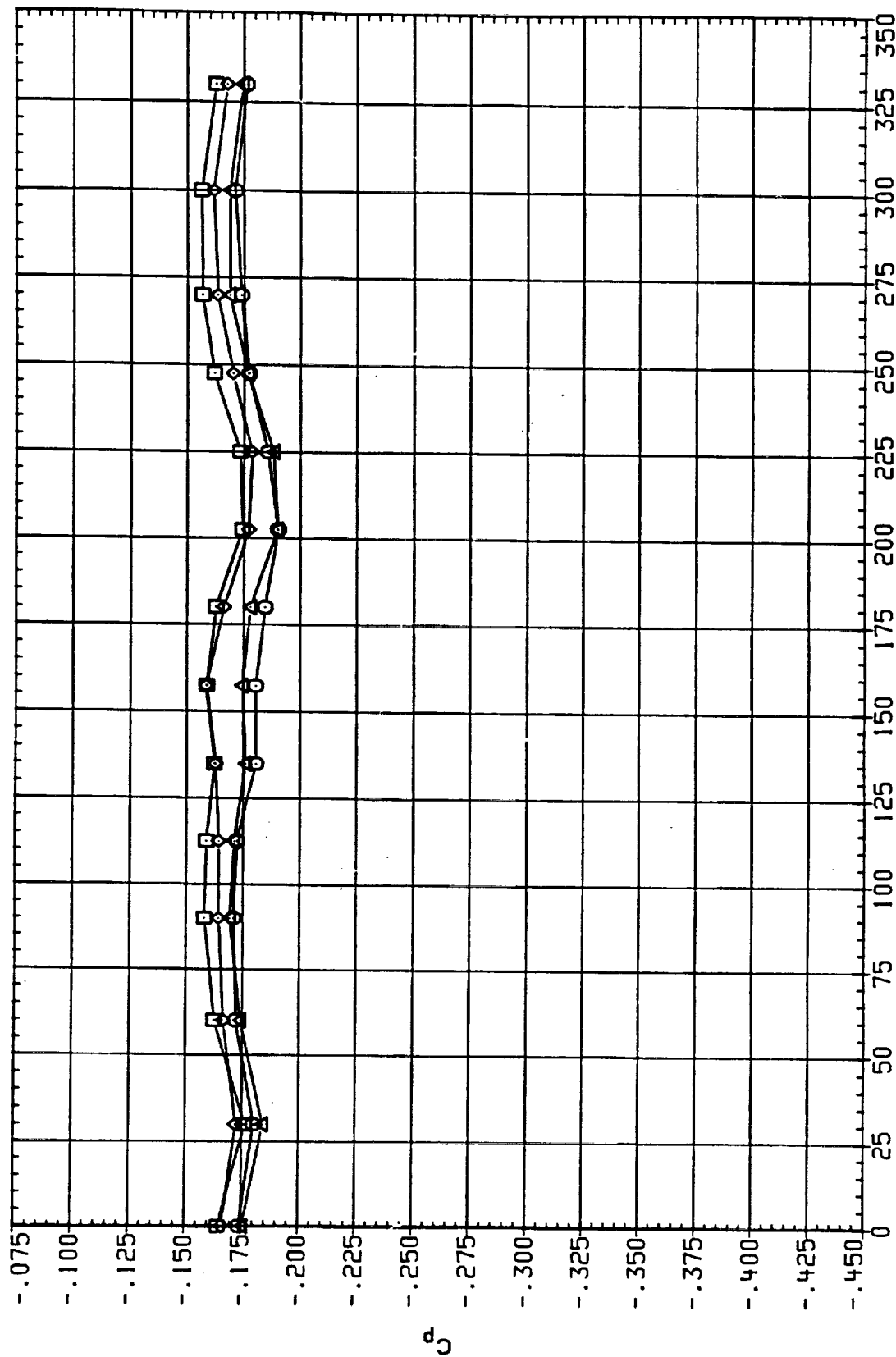
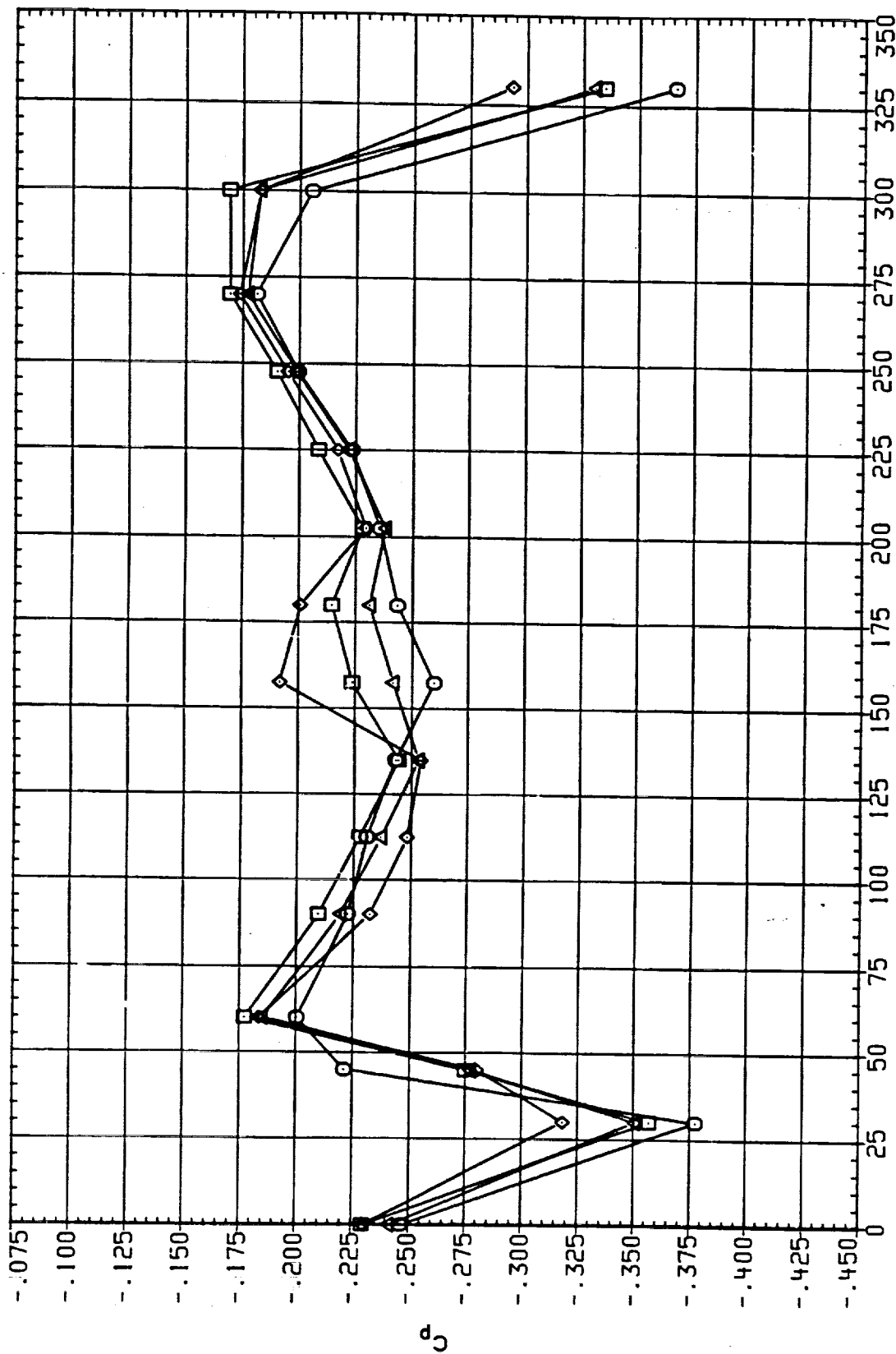


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA21)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOA48)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	.000	10.000	9.000
(RCOA86)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	180.000	10.000	9.000
(XCOAC4)	△	IA613A.B/L OT+SRM+PLUMES SI.2	1.150	999.000	10.000	5.000



F GURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	TANK BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCO422)	○	IA613A, B/L OT+ASRH+PLUMES S1.2	-EXT. TANK BASE	1.250	.000	10.000	9.000
(RCO449)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	-EXT. TANK BASE	1.250	.000	10.000	9.000
(RCO487)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	-EXT. TANK BASE	1.250	180.000	10.000	9.000
(RCO4C5)	△	IA613A, B/L OT+ASRH+PLUMES S1.2	-EXT. TANK BASE	1.250	999.000	10.000	5.000

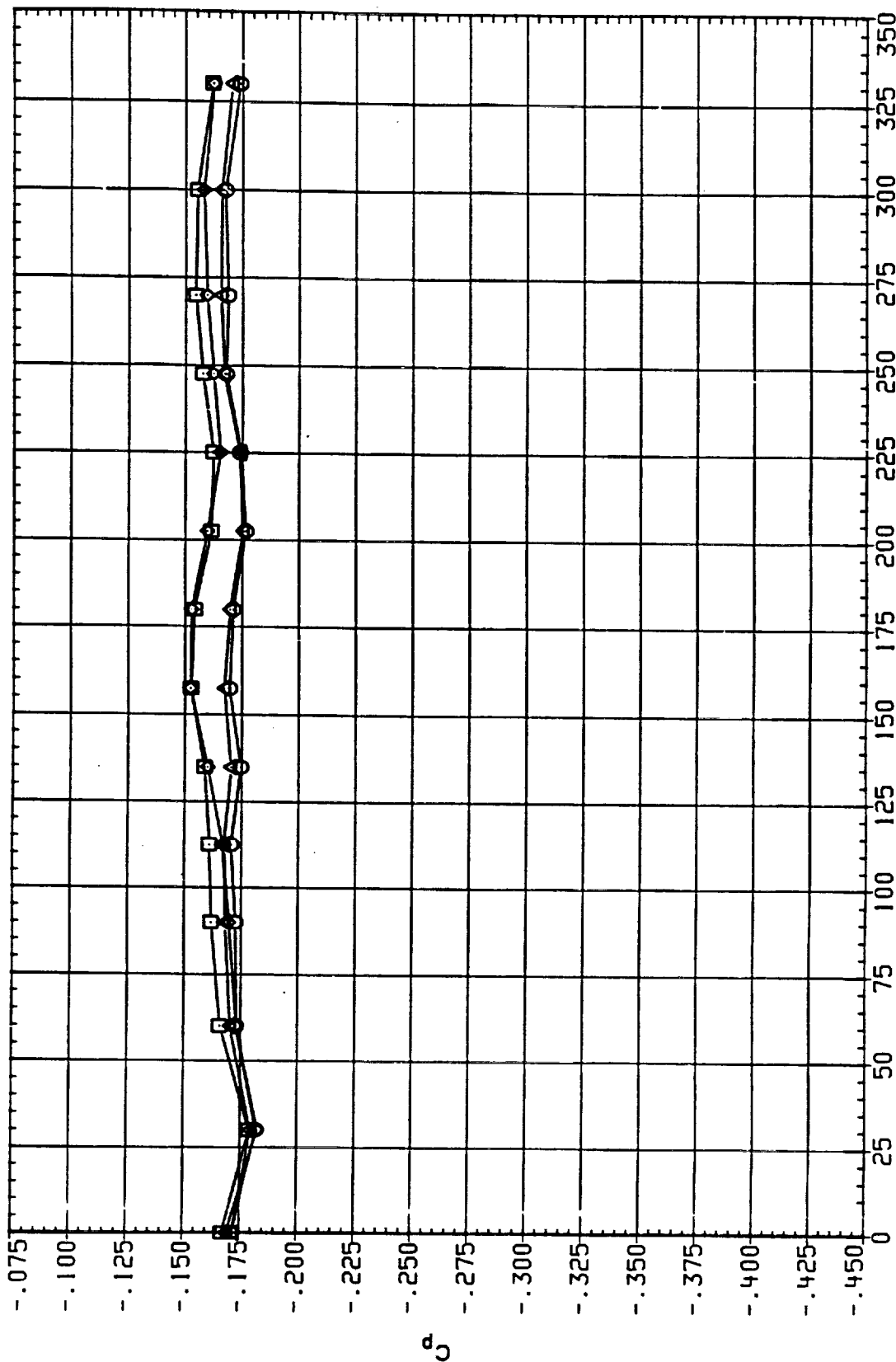


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK BASE  
 BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCO422)	○	IA613A,B/L 01+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCO443)	□	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCO487)	◇	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCO4C5)	△	IA613A,B/L 01+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

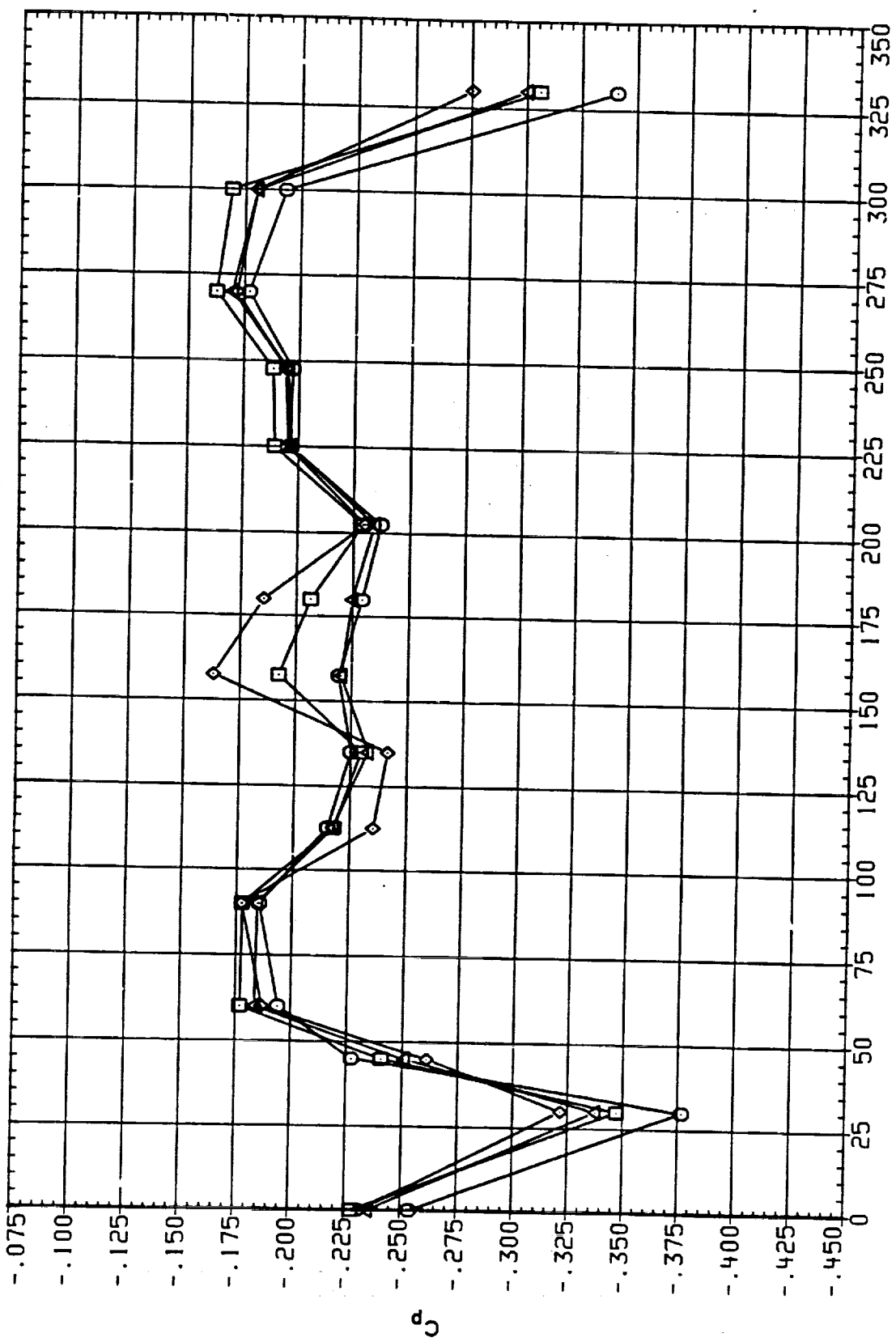


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1E-BOX	1B-ELV	OB-ELV
(RCOA51)	○	1A613A, B/L 01+RSRH+PLUES S1.2	1.300	.000	10.000	9.000
(RCOA54)	□	1A613A, B/L 01+ASRH+PLUES S1.3	1.300	.000	10.000	5.000
(RCOA83)	△	1A613A, B/L 01+ASRH+PLUES S1.3	1.300	180.000	10.000	5.000
(RCOA67)	◇	1A613A, B/L 01+ASRH+PLUES S1.3	1.300	999.000	10.000	5.000

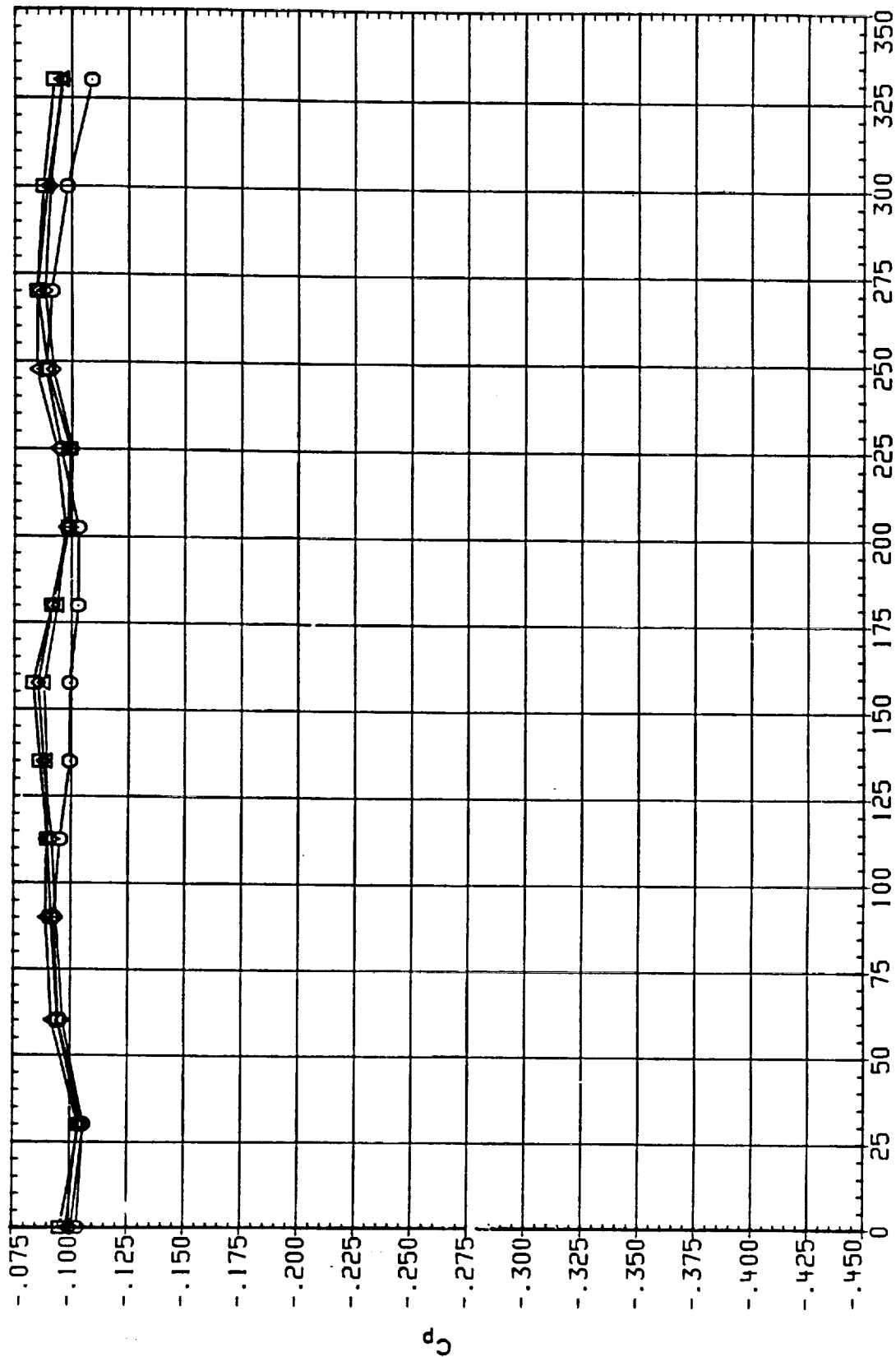


FIGURE 9 1A613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 RADIUS = 77.480 ALPHA = .000  
 EXTERNAL TANK BASE

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA46)	○	IA613A, B/L OT+RSRM+PLUMES SI.2	1.300	.000	10.000	9.000
(RCOA54)	□	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	.000	10.000	5.000
(RCOA89)	◇	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	180.000	10.000	5.000
(RCOA67)	△	IA613A, B/L OT+ASRM+PLUMES SI.3	1.300	999.000	10.000	5.000

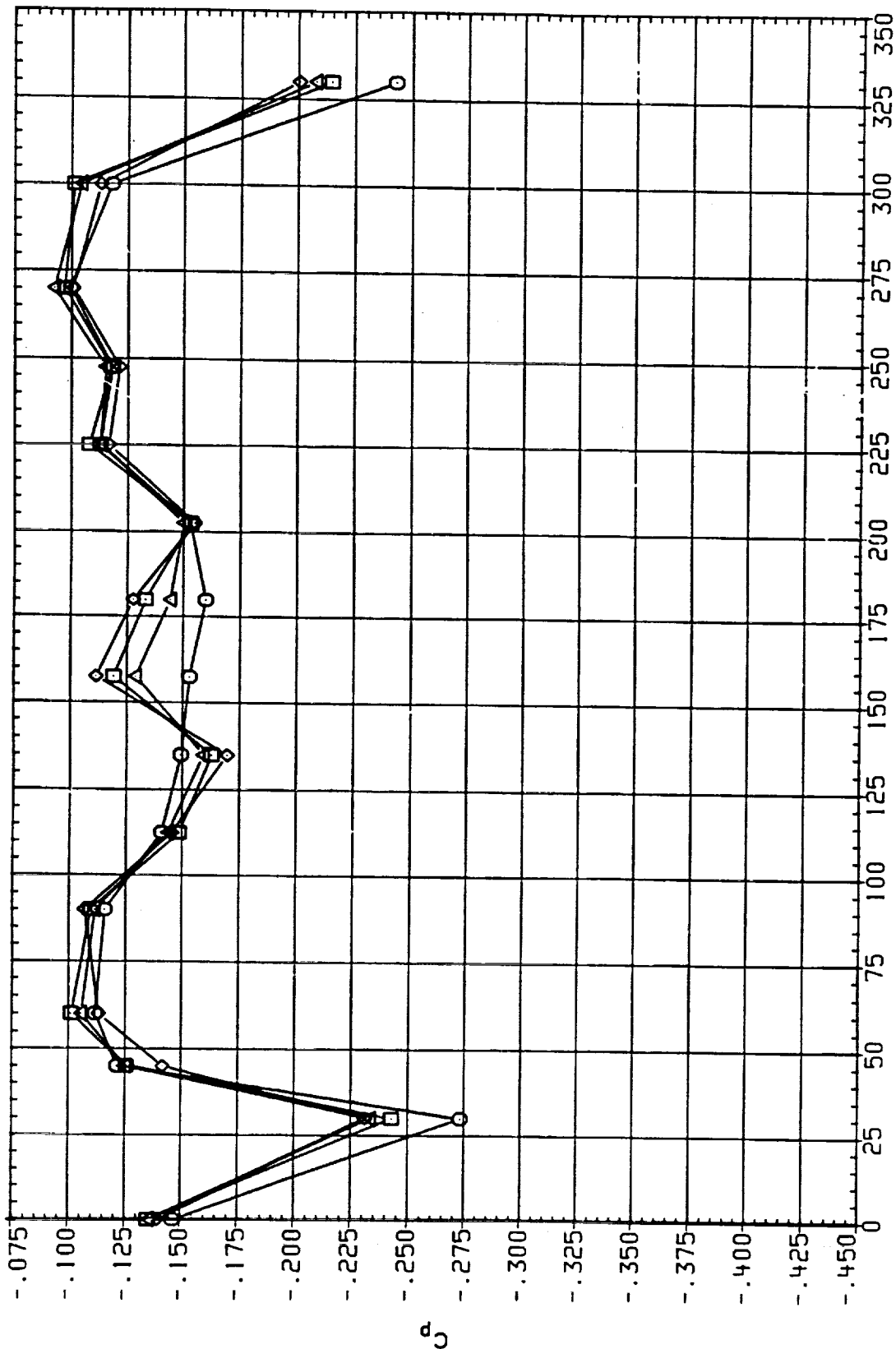


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK BASE  
 BETA = .000 RADIUS = 156.560 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOAH7)	○	IA613A, B/L OT+ASRH+PLUMES SI.2	1.350	.000	10.000	9.000
(RCOAS5)	○	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RCOA90)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOACB)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

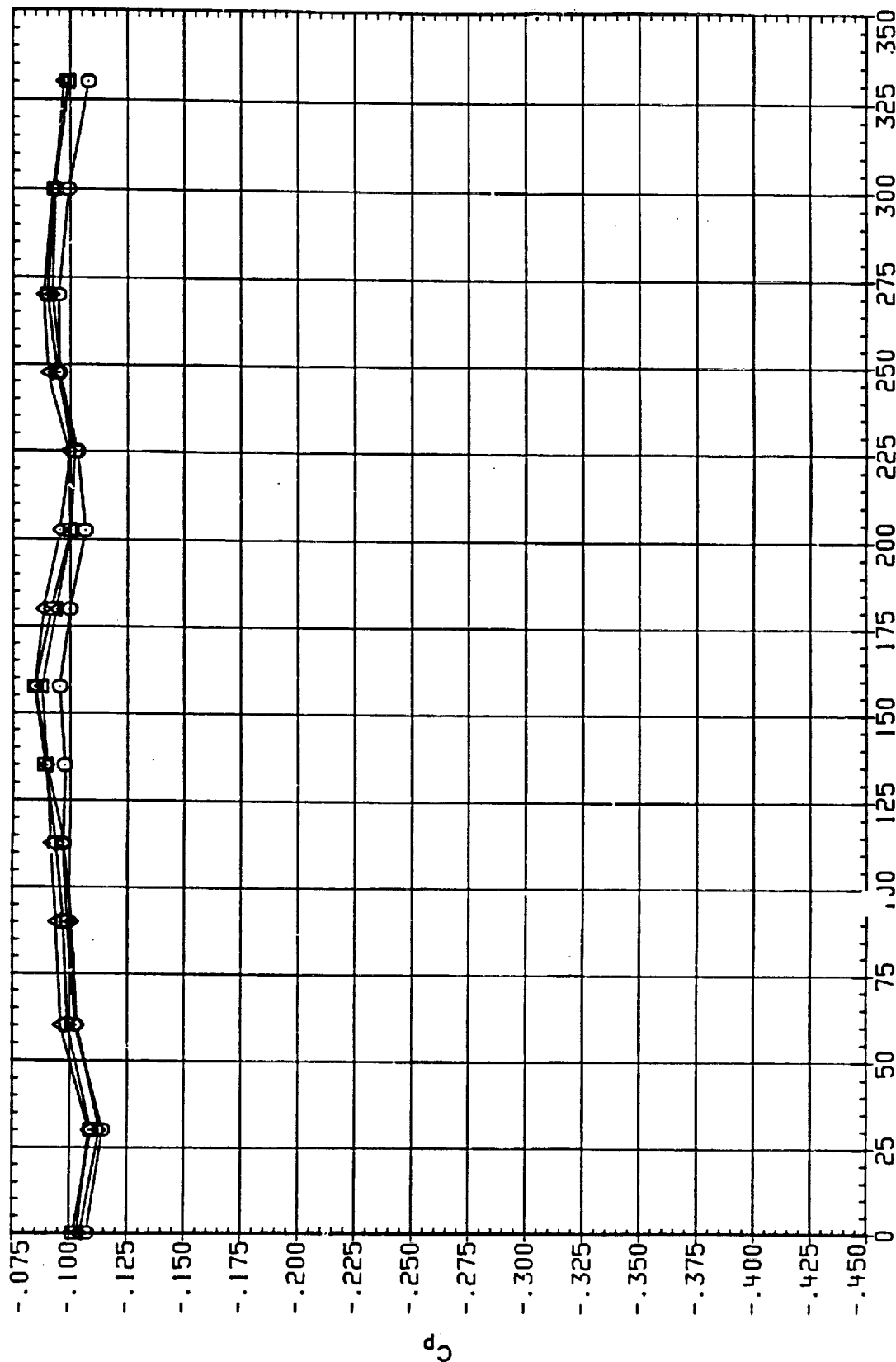


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXT. TANK BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA7)	○	IA613A.B/L OT+RSRH+PLUMES SI.2	-EXT. TANK BASE	1.350	.000	10.000	9.000
(RCOA55)	○	IA613A.B/L OT+ASRH+PLUMES SI.3	-EXT. TANK BASE	1.350	.000	10.000	5.000
(RCOA90)	◇	IA613A.B/L OT+ASRH+PLUMES SI.3	-EXT. TANK BASE	1.350	180.000	10.000	5.000
(RCOACB)	△	IA613A.B/L OT+ASRH+PLUMES SI.3	-EXT. TANK BASE	1.350	999.000	10.000	5.000

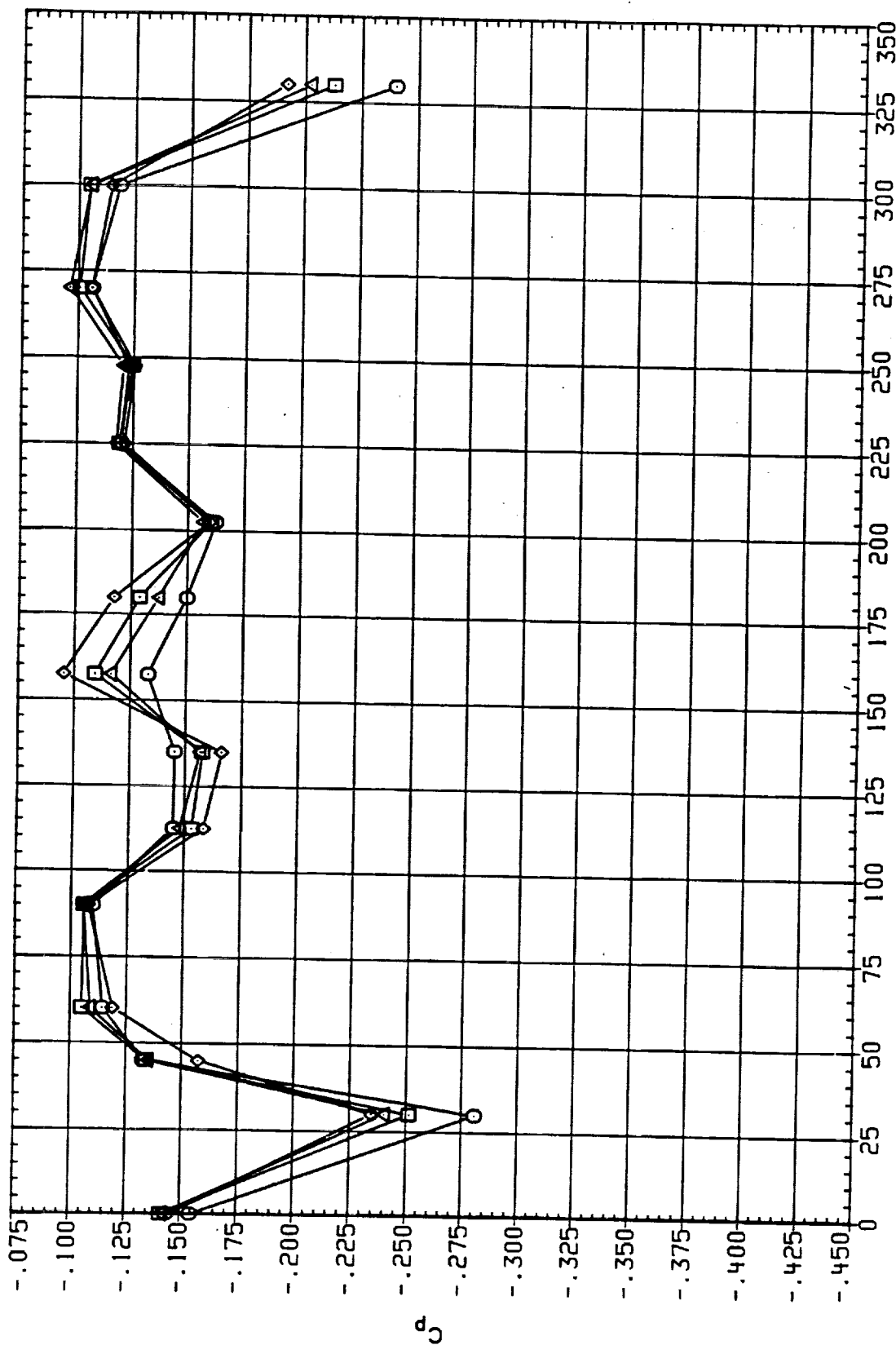


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA8)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	1.400	.000	10.000	9.000
(RCOA56)	□	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	.000	10.000	5.000
(RCOA91)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	180.000	10.000	5.000
(RCOA9)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.400	999.000	10.000	5.000

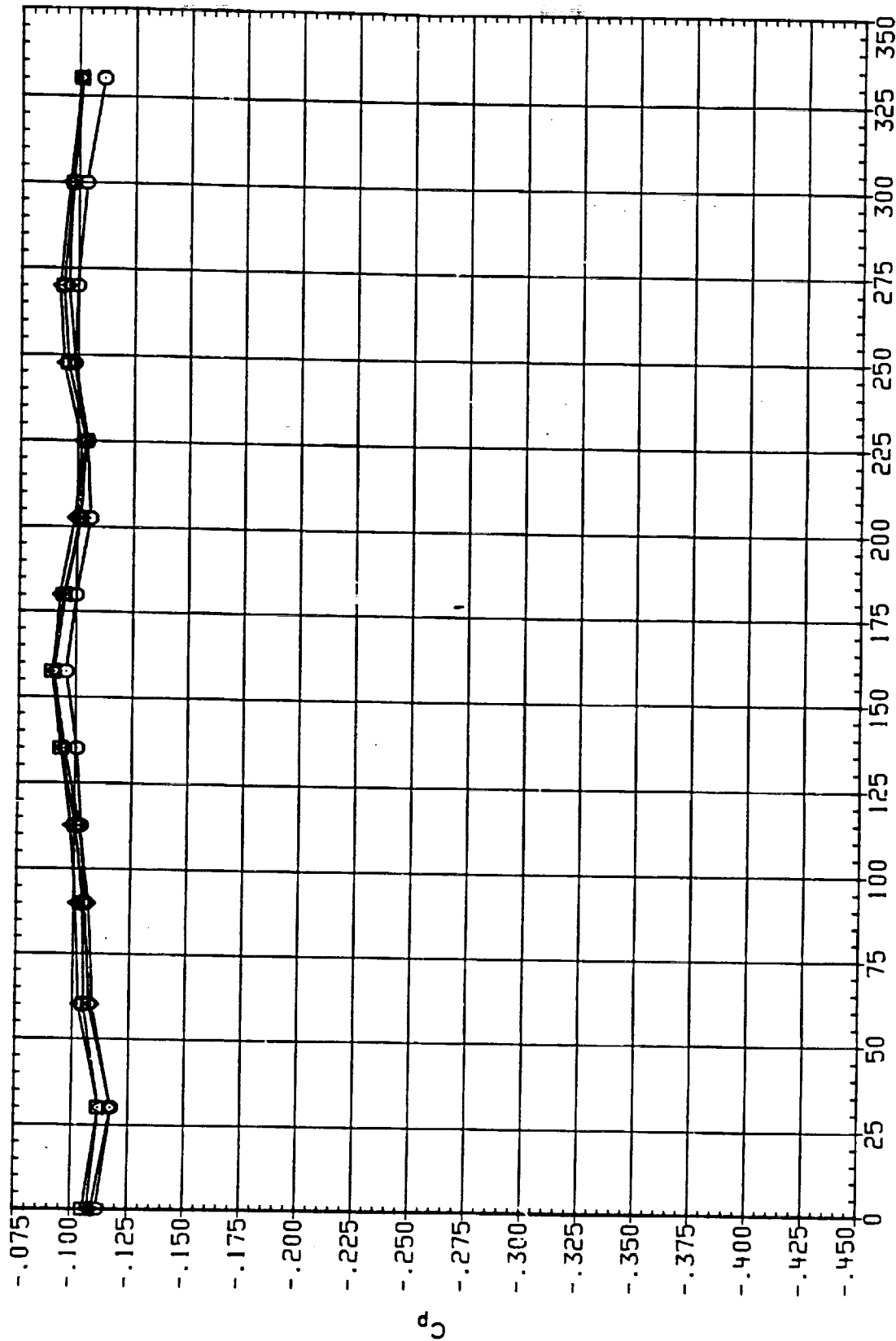


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE  
BETA = .000 RADIUS = 77.490 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOA8)	□	IA613A, B/L 01+RSRH+PLUMES SI.2	1.400	.000	10.000	9.000
(RCOA56)	○	IA613A, B/L 01+ASRH+PLUMES SI.3	1.400	.000	10.000	9.000
(RCOA91)	◇	IA613A, B/L 01+ASRH+PLUMES SI.3	1.400	180.000	10.000	5.000
(RCOA9)	△	IA613A, B/L 01+ASRH+PLUMES SI.3	1.400	999.000	10.000	5.000

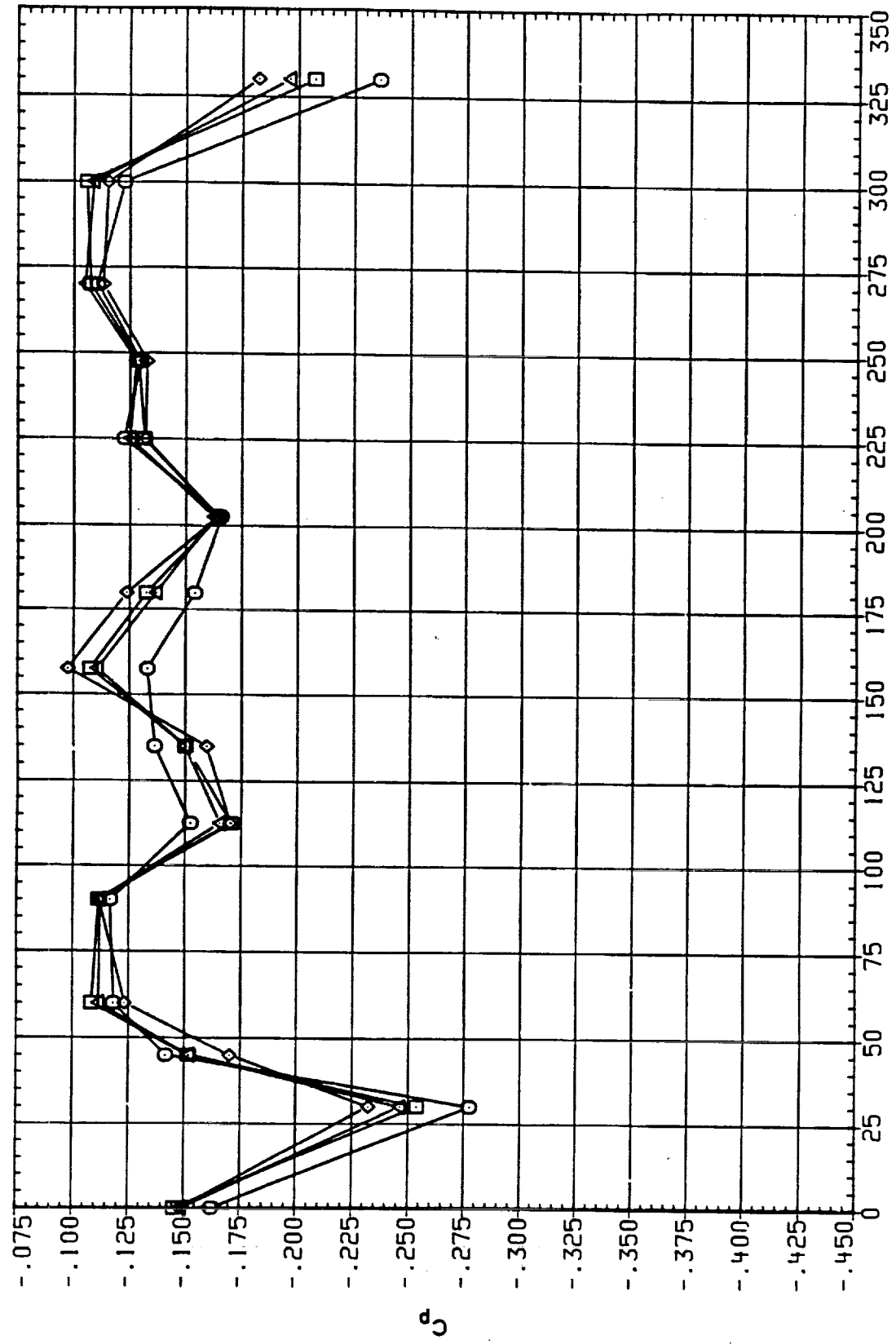


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK BASE

BETA = .000      RADIUS = 156.560      ALPHA = .000      PAGE 238

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	EXT. TANK BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RC04H9)	○	IA613A.B/L OT+SRM+PLUMES SI.2	-EXT. TANK BASE	1.550	.000	10.000	9.000
(RC04S7)	□	IA613A.B/L OT+SRM+PLUMES SI.3	-EXT. TANK BASE	1.550	.000	10.000	5.000
(RC04G2)	◇	IA613A.B/L OT+SRM+PLUMES SI.3	-EXT. TANK BASE	1.550	180.000	10.000	5.000
(RC04D0)	△	IA613A.B/L OT+SRM+PLUMES SI.3	-EXT. TANK BASE	1.550	999.000	10.000	5.000

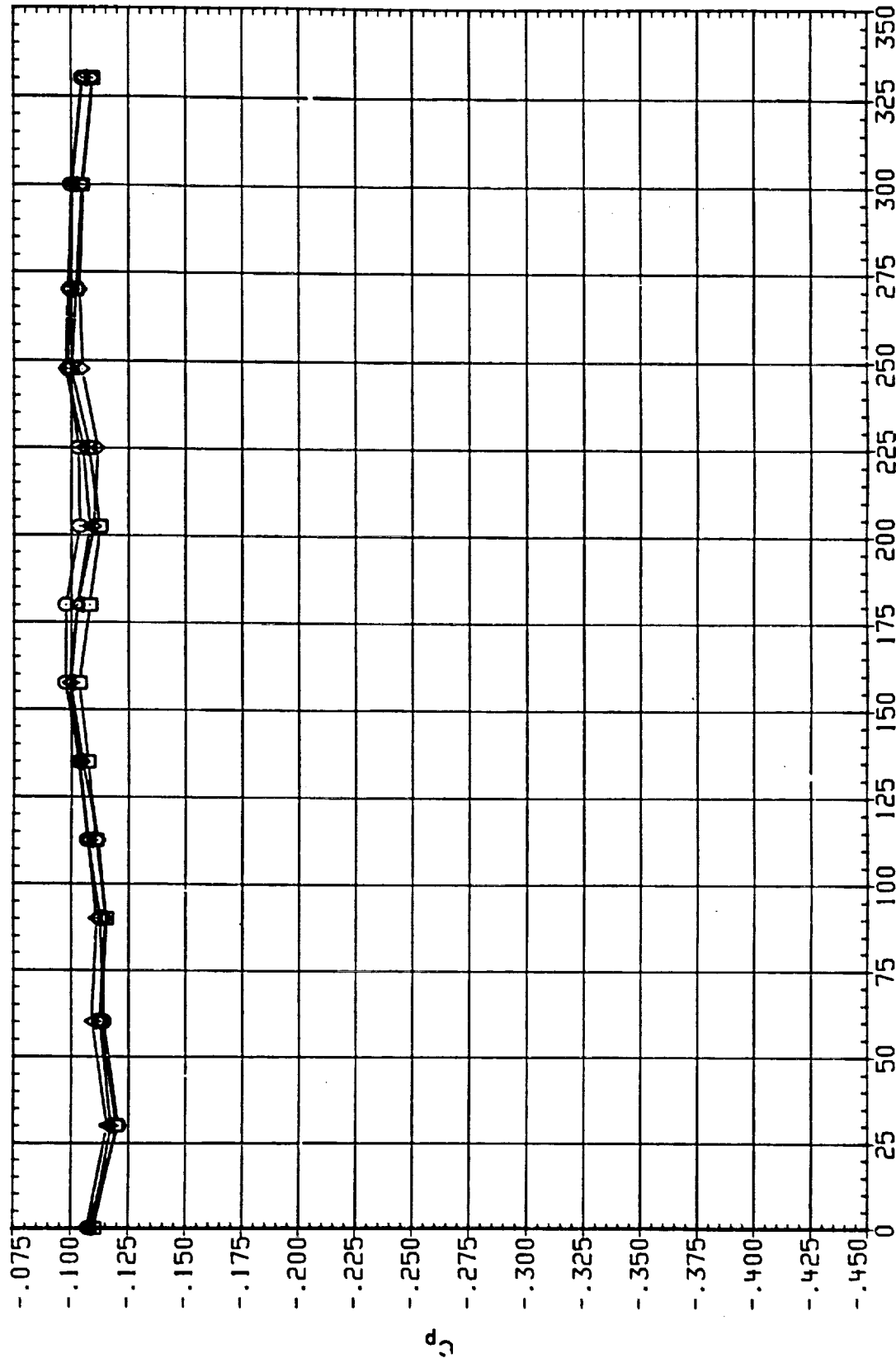


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 RADIUS = 77.480 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOAH91)	○	IA613A.B/L OT*PSRM*PLUHS SI.2	1.550	.000	10.000	9.000
(RCOAS71)	□	IA613A.B/L OT*ASRM*PLUHS SI.3	1.550	.000	10.000	5.000
(RCOAS21)	◇	IA613A.B/L OT*ASRM*PLUHS SI.3	1.550	180.000	10.000	5.000
(RCOAO01)	△	IA613A.B/L OT*ASRM*PLUHS SI.3	1.550	999.000	10.000	5.000

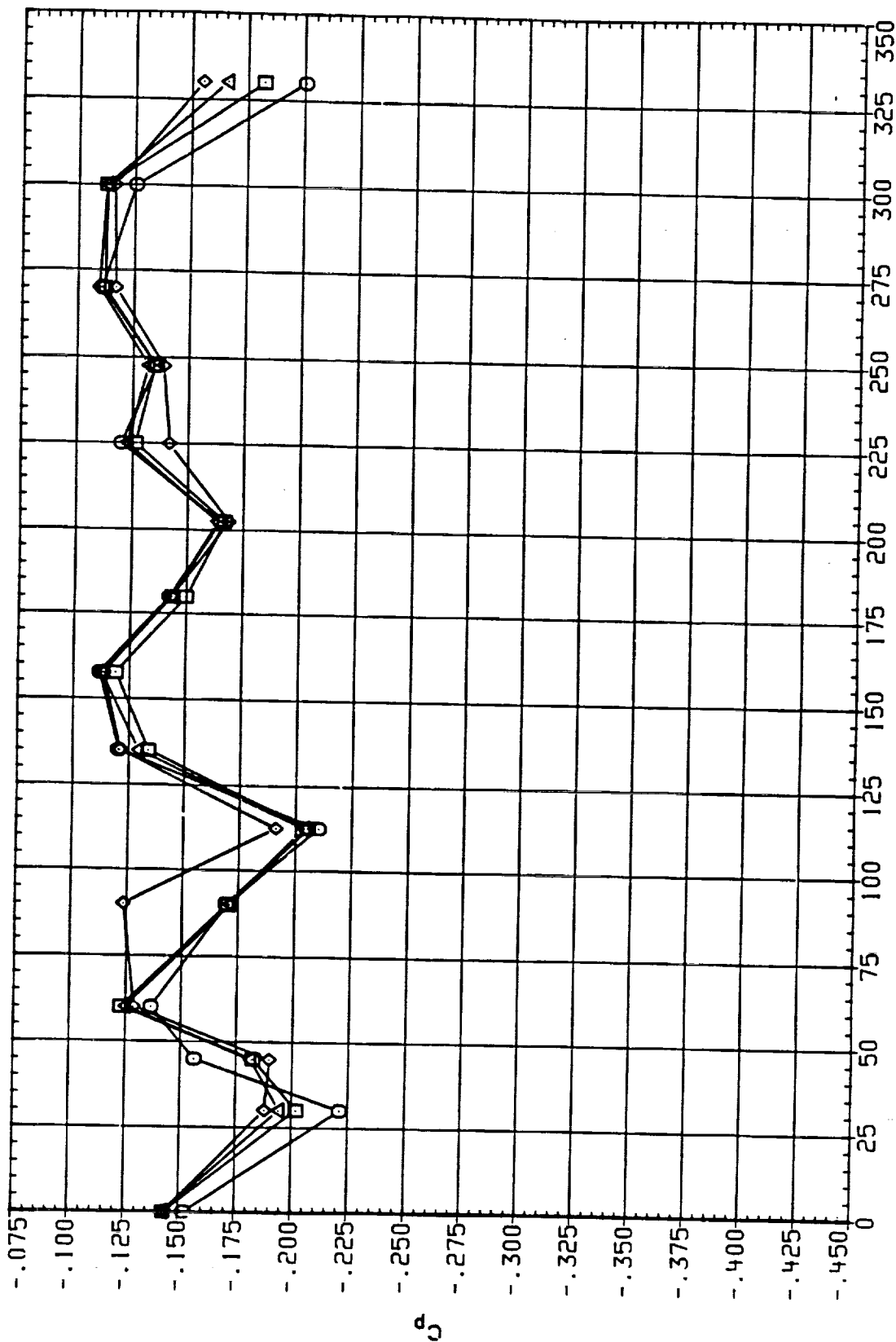


FIGURE 9 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK BASE  
 BETA = .000 RADIUS = 156.560 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-L02 FEEDLINE	MACH	IEABOX	IB-ELV	OB-ELV
(RCON15)	○	IA613A, B/L OT+SRM+PLUMES SI.2	-L02 FEEDLINE	.600	.000	10.000	9.000
(RCON42)	◇	IA613A, B/L OT+SRM+PLUMES SI.2	-L02 FEEDLINE	.600	.000	10.000	9.000
(RCON80)	◇	IA613A, B/L OT+SRM+PLUMES SI.2	-L02 FEEDLINE	.600	180.000	10.000	9.000
(RCONC1)	△	IA613A, B/L OT+SRM+PLUMES SI.2	-L02 FEEDLINE	.600	999.000	10.000	5.000

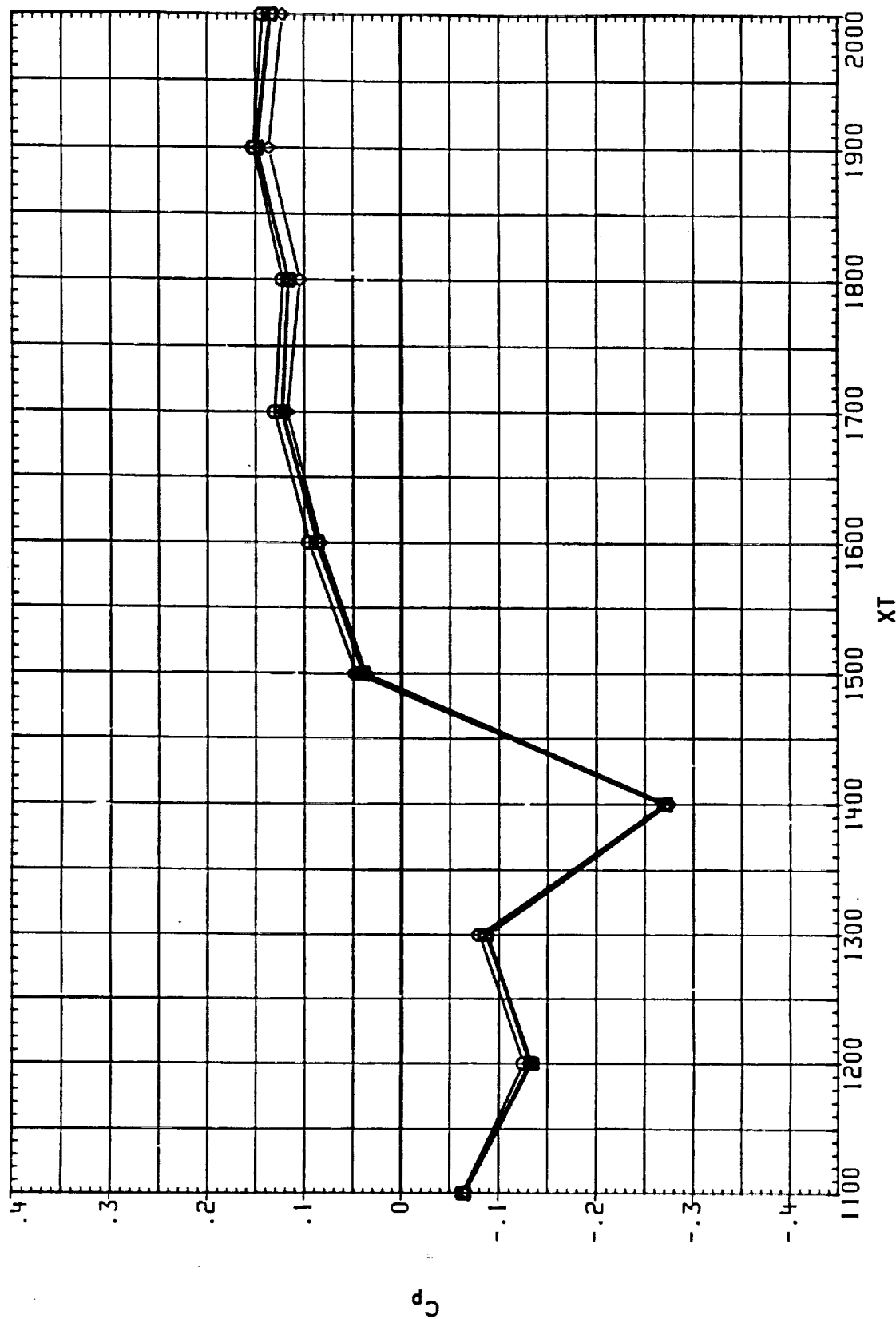


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK L02 FEEDLINE

BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCON16)	○	IA613A.B/L OT*ASRM*PLUMES SI.2	.800	.000	10.000	9.000
(RCON43)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.800	.000	10.000	9.000
(RCON81)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.800	180.000	10.000	9.000

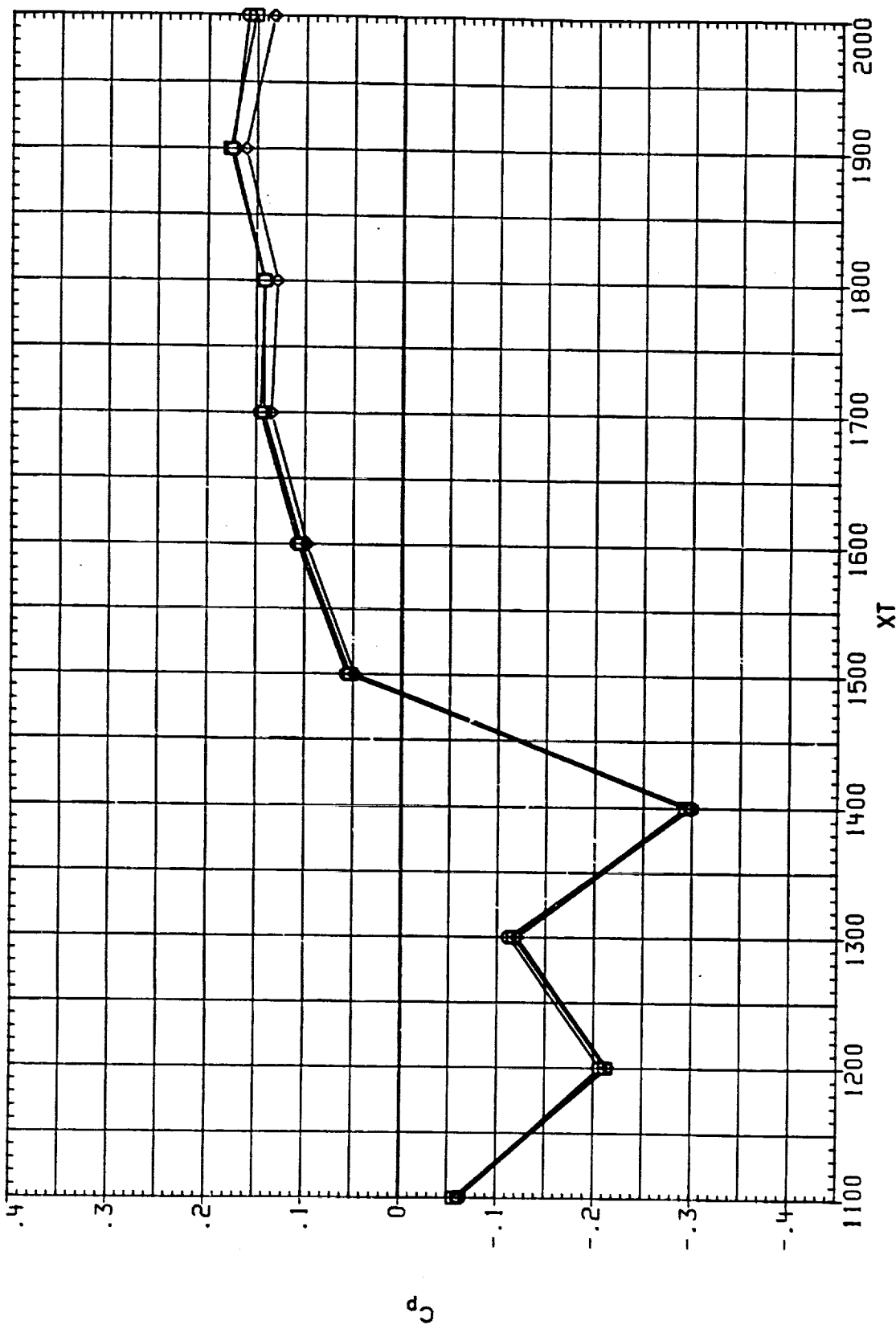


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK L02 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000



DATA SET	SYMBOL	CONF IGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOM17)	○	IA613A.B/L OT+RSRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOM14)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	.000	10.000	9.000
(RCOM12)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	180.000	10.000	9.000
				999.000	10.000	5.000

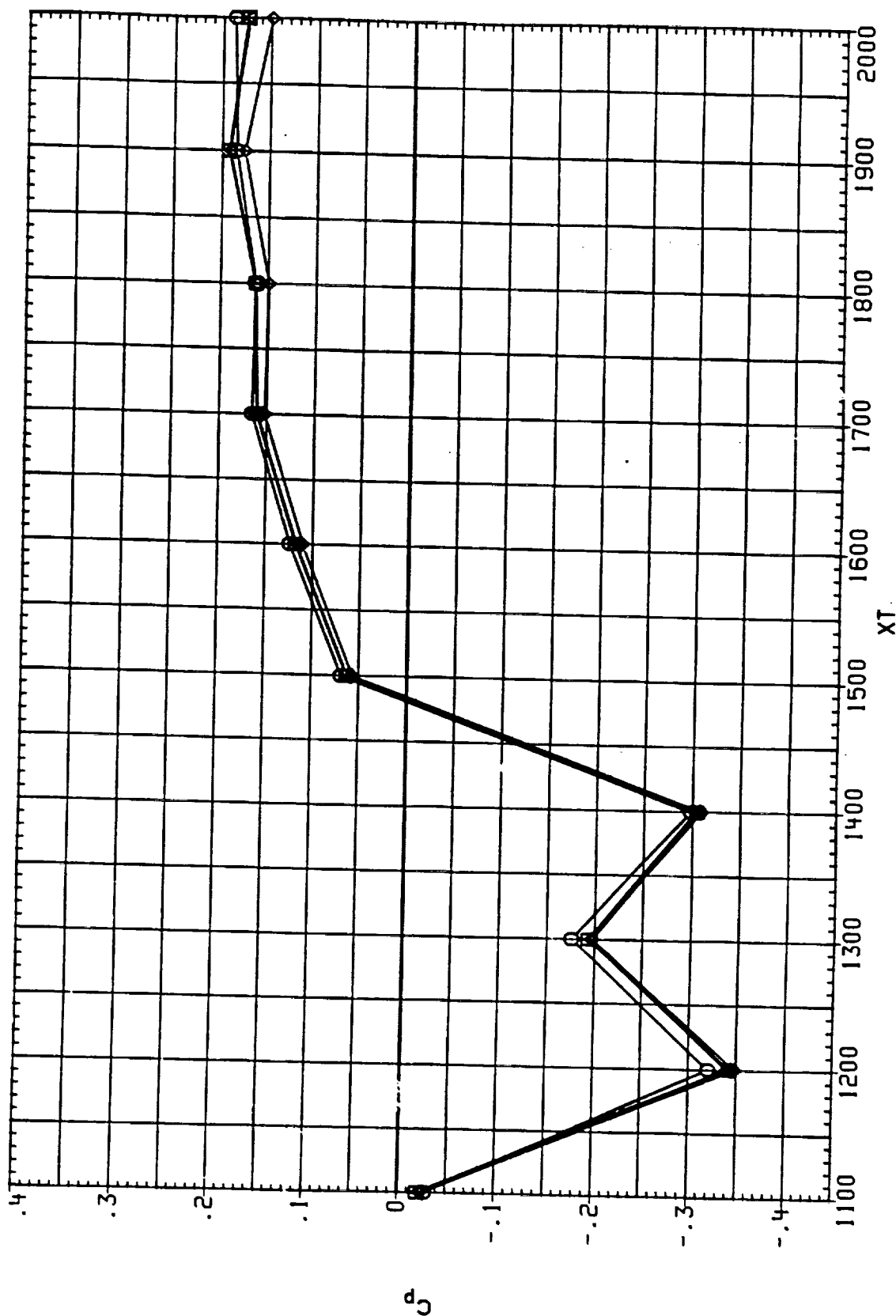


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK L02 FEEDLINE  
BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	ICABOX	IB-ELV	OB-ELV
(RCON18)	○	IA613A, B/L OT+RSRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCON15)	□	IA613A, B/L OT+ASRH+PLUMES S1.2	.950	.000	10.000	9.000
(RCON13)	◇	IA613A, B/L OT+ASRH+PLUMES S1.2	.950	180.000	10.000	9.000

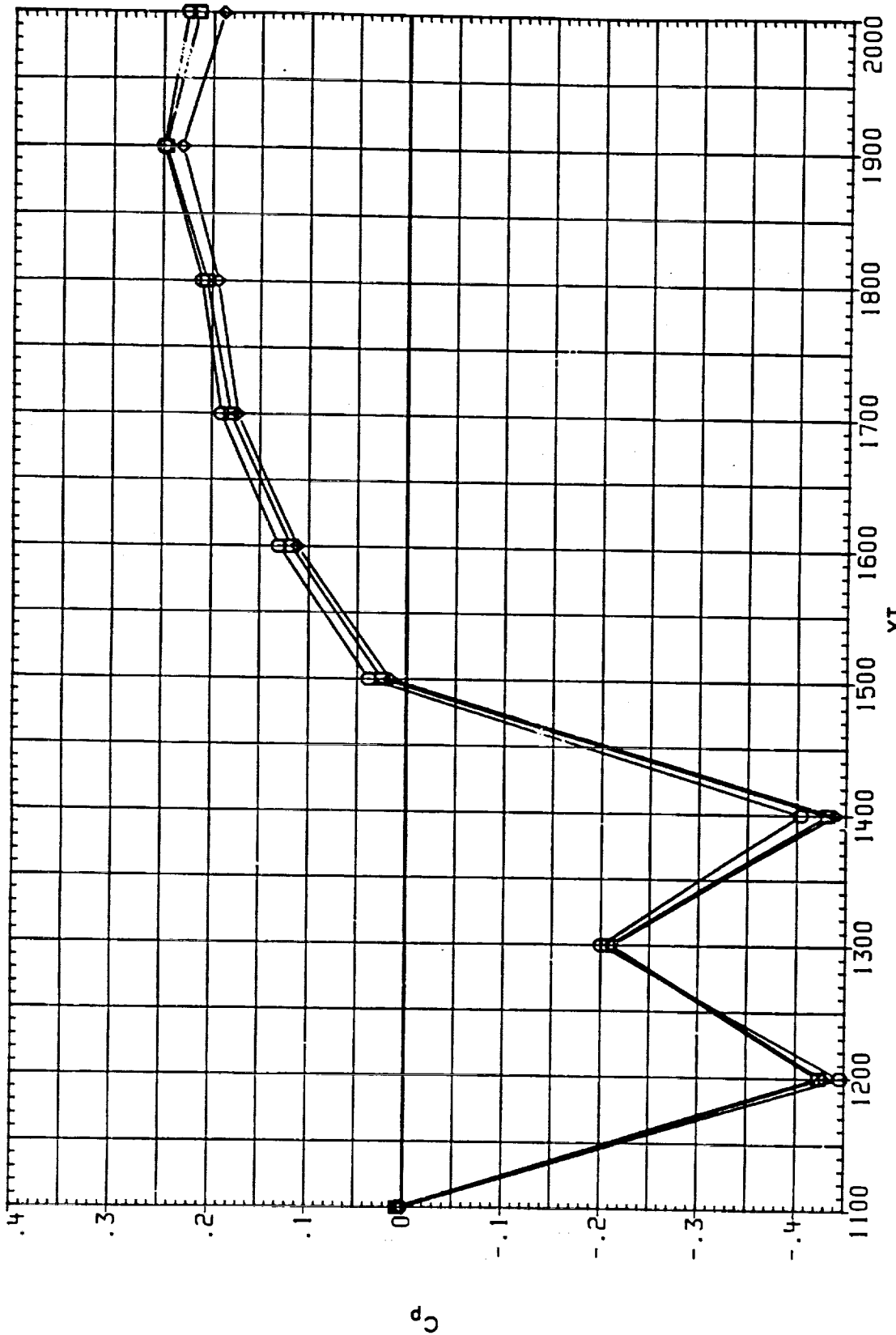


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK L02 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET 51181/2	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(PCOM19)	IA613A.B/L OT*PSRM*PLUMES S1.2	1.050	.000	10.000	9.000
(RCOM16)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.050	.000	10.000	9.000
(RCOM21)	IA613A.B/L OT*ASRM*PLUMES S1.2	1.050	190.000	10.000	9.000

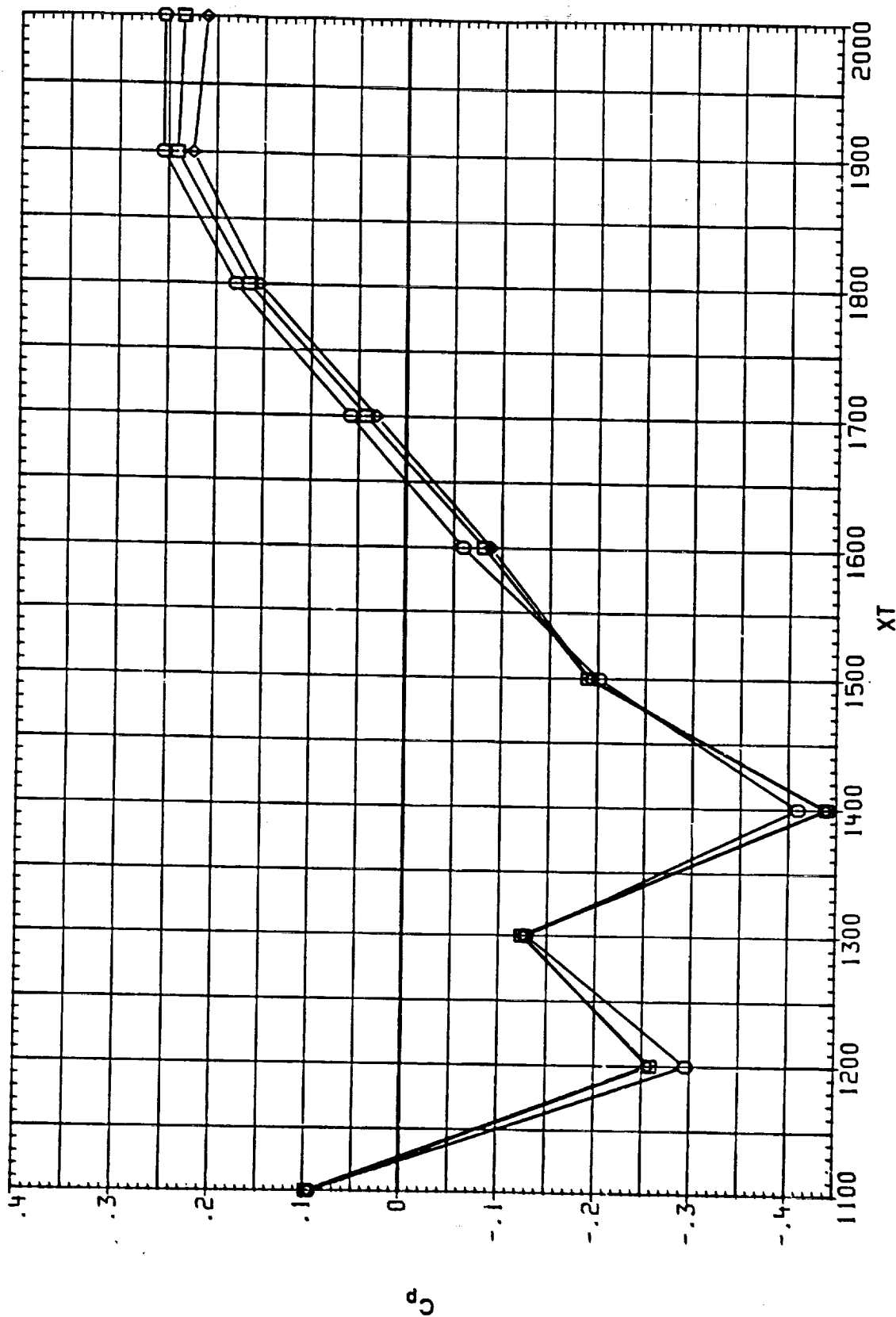


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK L02 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RCON20)	○	IA613A,B/L OT+RSRM+PLUMES S1.2
(RCON7)	□	IA613A,B/L OT+ASRM+PLUMES S1.2
(RCON5)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2
(RCON3)	△	IA613A,B/L OT+ASRM+PLUMES S1.2

MACH IEABOX IB-ELV OB-ELV

1.100	.000	10.000	9.000
1.100	.000	10.000	9.000
1.100	180.000	10.000	9.000
1.100	999.000	10.000	5.000

-L02 FEEDLINE  
-L02 FEEDLINE  
-L02 FEEDLINE  
-L02 FEEDLINE

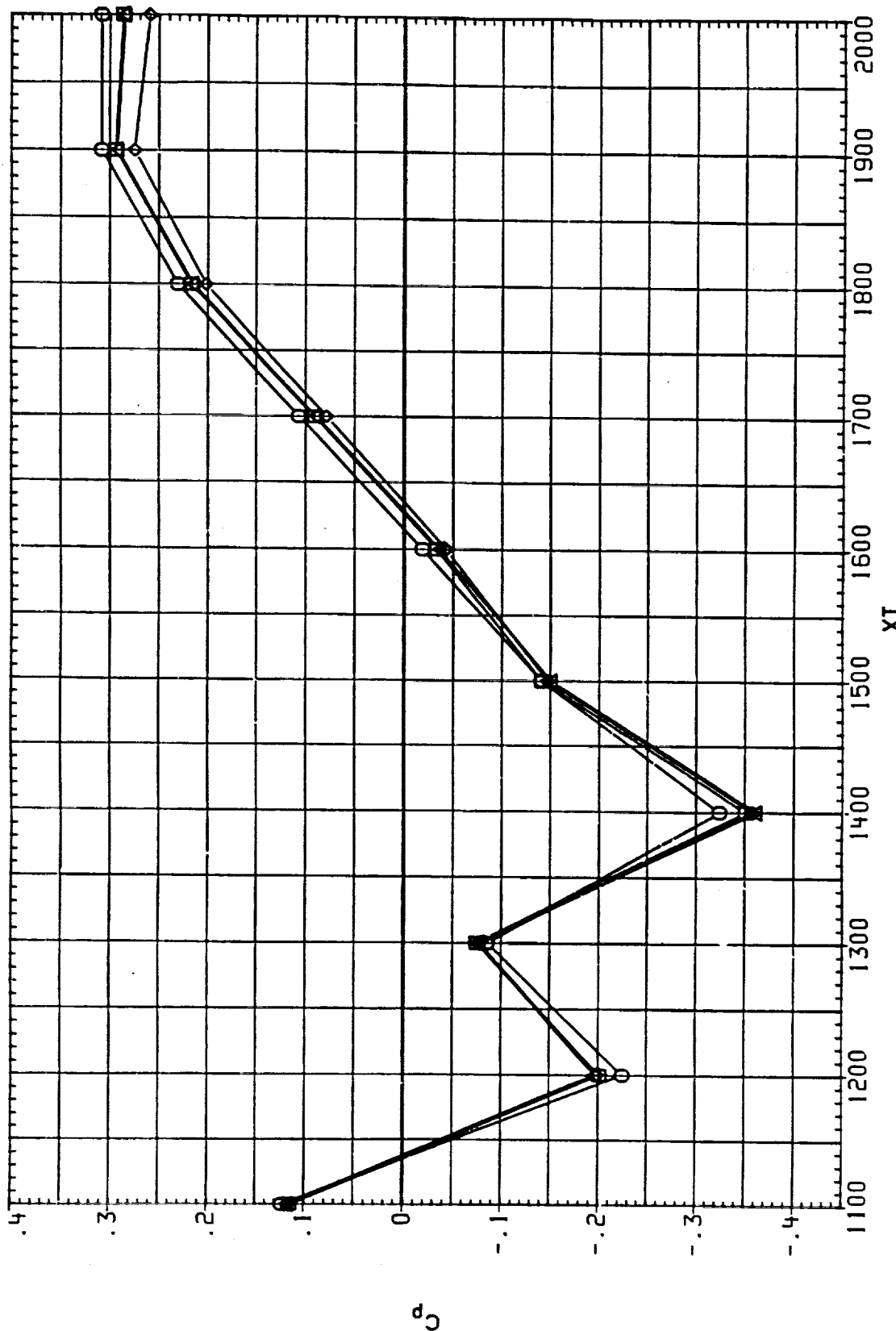


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK L02 FEEDLINE  
BETA = 0.000 PHI = 60.000 ALPHA = 0.000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LO2 FEEDLINE	MACH	IEABOX	IB-ELV	OB-ELV
(RCON21)	□	IA613A.B/L 01+RSRH+PLUMES S1.2	-LO2 FEEDLINE	1.150	.000	10.000	9.000
(RCON48)	◇	IA613A.B/L 01+ASRH+PLUMES S1.2	-LO2 FEEDLINE	1.150	.000	10.000	9.000
(RCON86)	△	IA613A.B/L 01+ASRH+PLUMES S1.2	-LO2 FEEDLINE	1.150	180.000	10.000	9.000
(XC0HC4)	△	IA613A.B/L 01+ASRH+PLUMES S1.2	-LO2 FEEDLINE	1.150	999.000	10.000	5.000

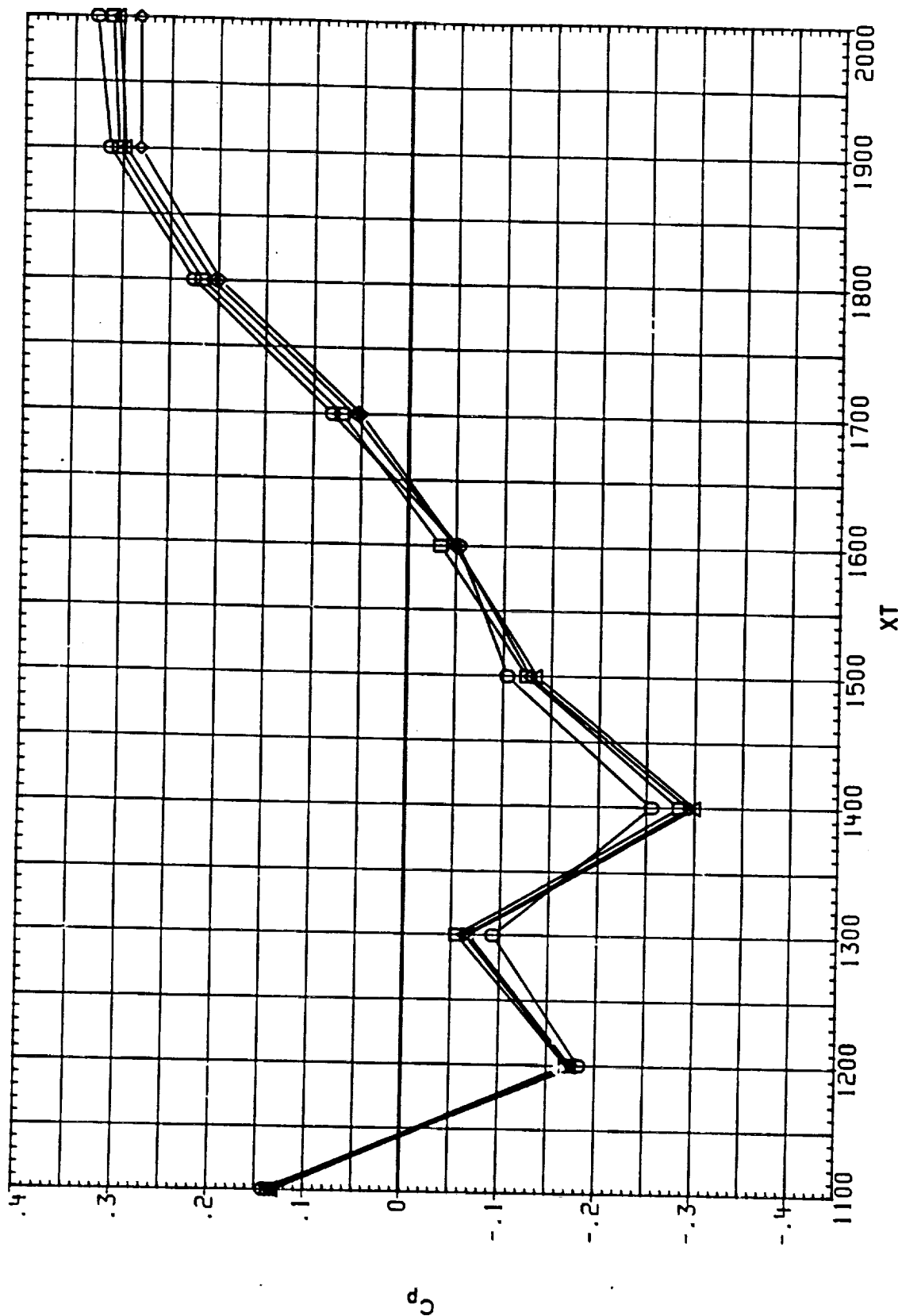


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK LO2 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	-LO2 FEEDLINE	MACH	IEAROX	IB-ELV	OB-ELV
(RCON22)	○	IA613A.B/L OT+SRM+PLUMES SI.2	-LO2 FEEDLINE	1.250	.000	10.000	9.000
(RCON49)	□	IA613A.B/L OT+SRM+PLUMES SI.2	-LO2 FEEDLINE	1.500	.000	10.000	9.000
(RCON97)	◇	IA613A.B/L OT+SRM+PLUMES SI.2	-LO2 FEEDLINE	1.250	180.000	10.000	9.000
(RCONC5)	△	IA613A.B/L OT+SRM+PLUMES SI.2	-LO2 FEEDLINE	1.250	999.000	10.000	5.000

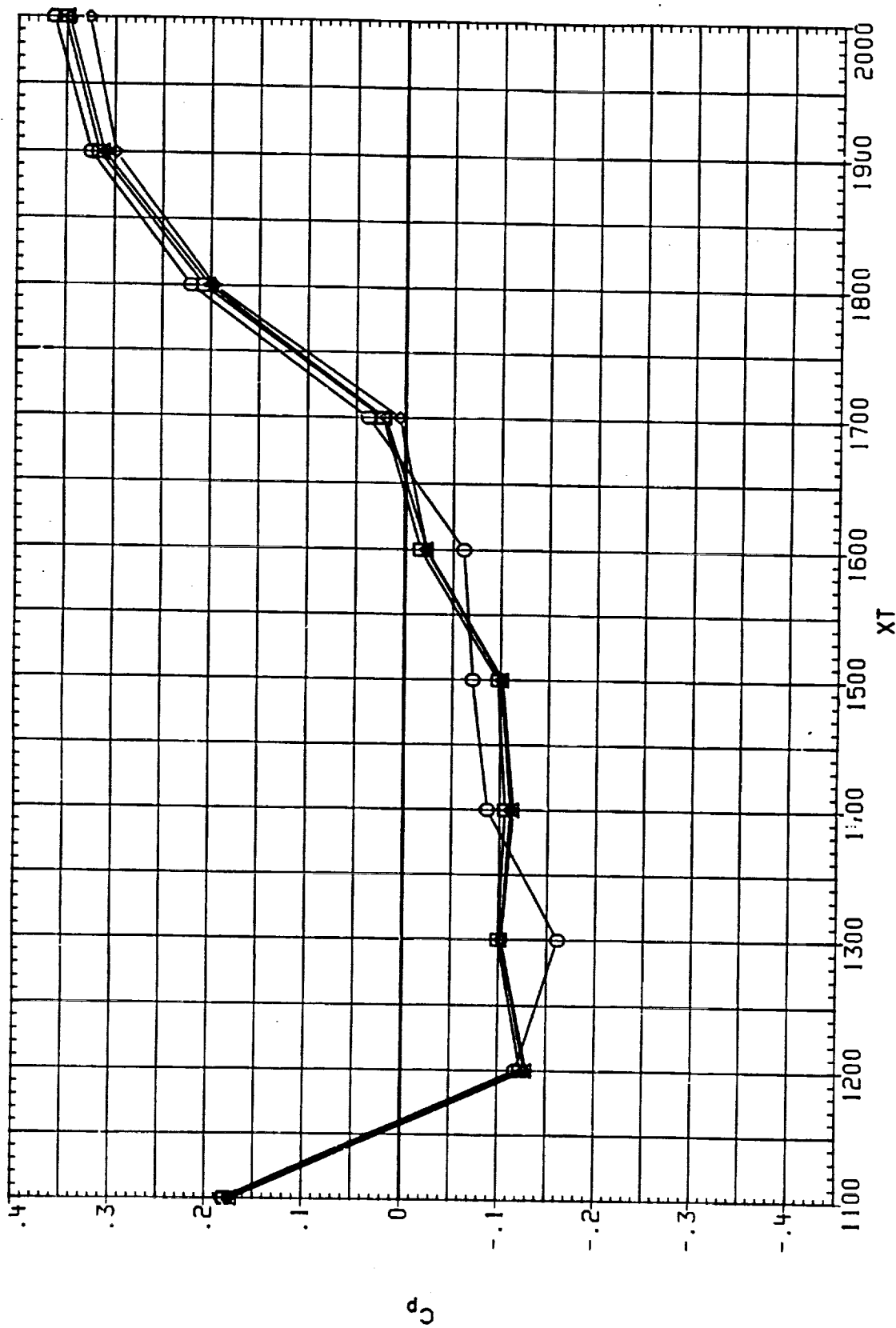


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 60.000 ALPHA = .000  
 EXTERNAL TANK LO2 FEEDLINE

DATA SET SYMBOL CONFIGURATION DESCRIPTION

IA613A.B/L OT\*ASRM\*PLUMES S1.2  
 IA613A.B/L OT\*ASRM\*PLUMES S1.3  
 IA613A.B/L OT\*ASRM\*PLUMES S1.3  
 IA613A.B/L OT\*ASRM\*PLUMES S1.3

-L02 FEEDLINE  
 -L02 FEEDLINE  
 -L02 FEEDLINE  
 -L02 FEEDLINE

MACH IEABOX IB-ELV OB-ELV  
 1.300 .000 10.000 9.000  
 1.300 .000 10.000 5.000  
 1.300 180.000 10.000 5.000  
 1.300 999.000 10.000 5.000

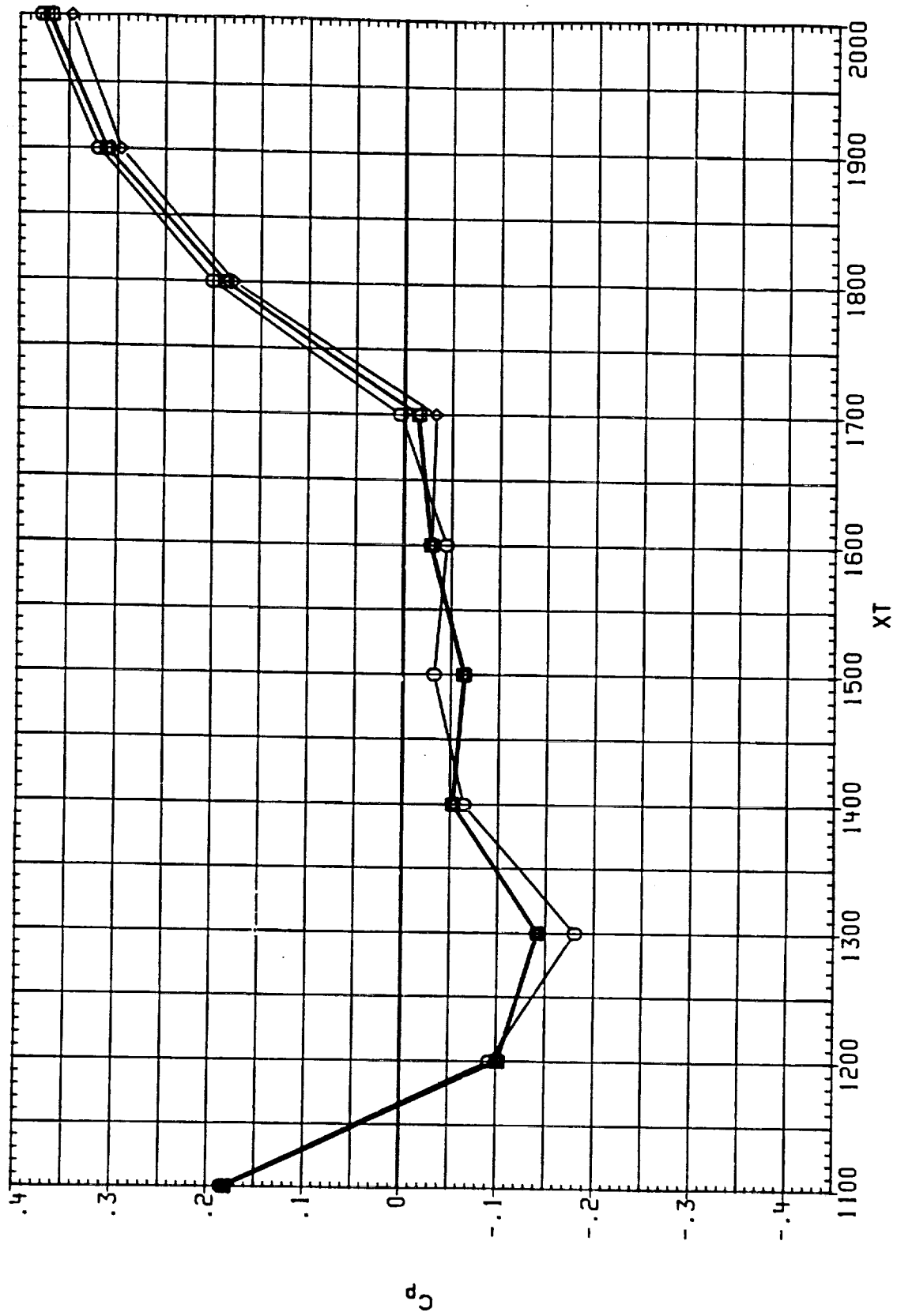


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK L02 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IE ABOX	IB-ELV	OB-ELV
(RCQMH7)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.350	.000	10.000	9.000
(RCQMH5)	□	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RCQMH9)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCQMH8)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

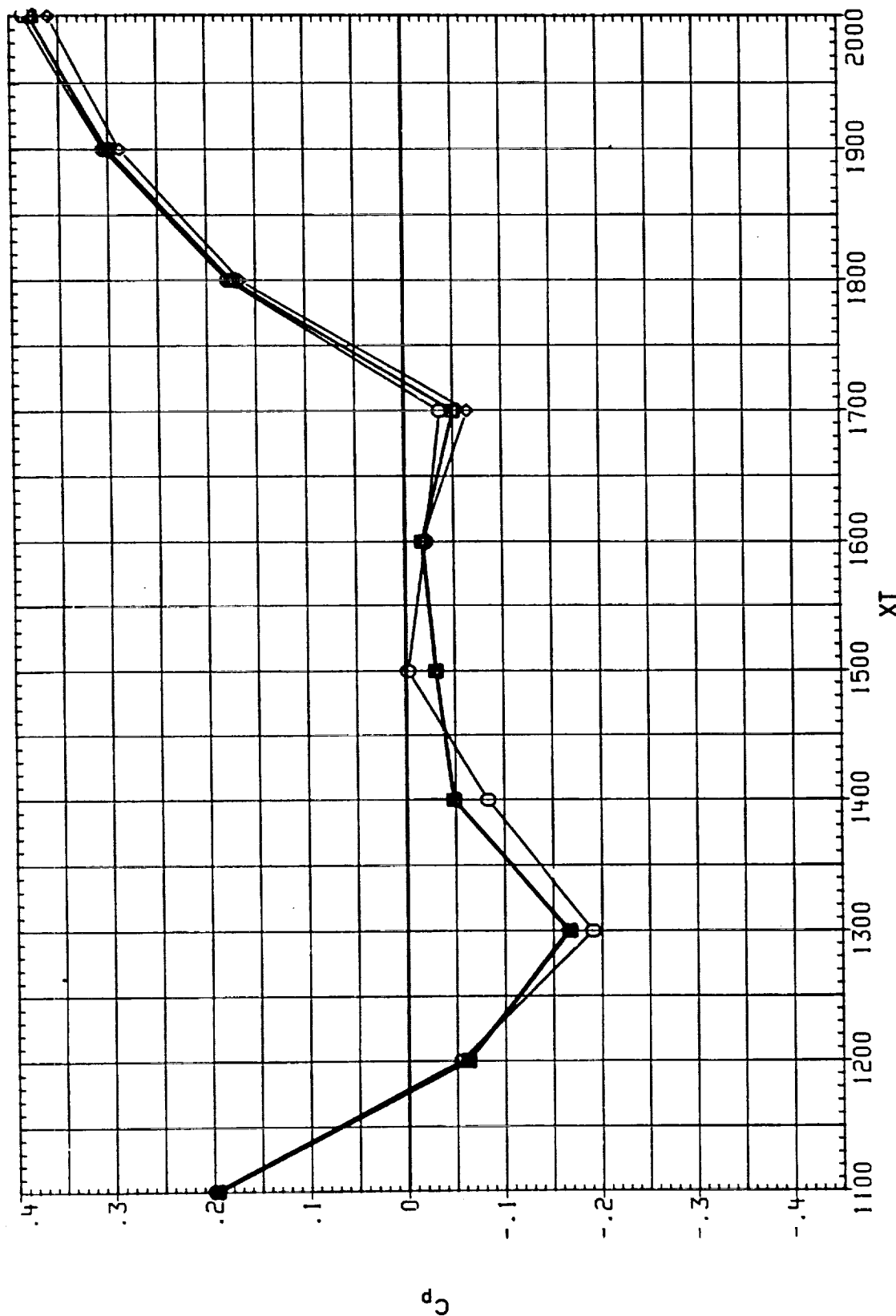


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK L02 FEEDLINE

BETA = .000 PHI = 60.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LO2 FEEDLINE	MACH	IEABOX	IB-ELV	OB-ELV
(RCONH8)	○	IA613A.B/L OT*ASRM*PLUMES S1.2	-LO2 FEEDLINE	1.400	.000	10.000	9.000
(RCONH6)	□	IA613A.B/L OT*ASRM*PLUMES S1.3	-LO2 FEEDLINE	1.400	.000	10.000	5.000
(RCONH3)	◇	IA613A.B/L OT*ASRM*PLUMES S1.3	-LO2 FEEDLINE	1.400	180.000	10.000	5.000
(RCONH9)	△	IA613A.B/L OT*ASRM*PLUMES S1.3	-LO2 FEEDLINE	1.400	999.000	10.000	5.000

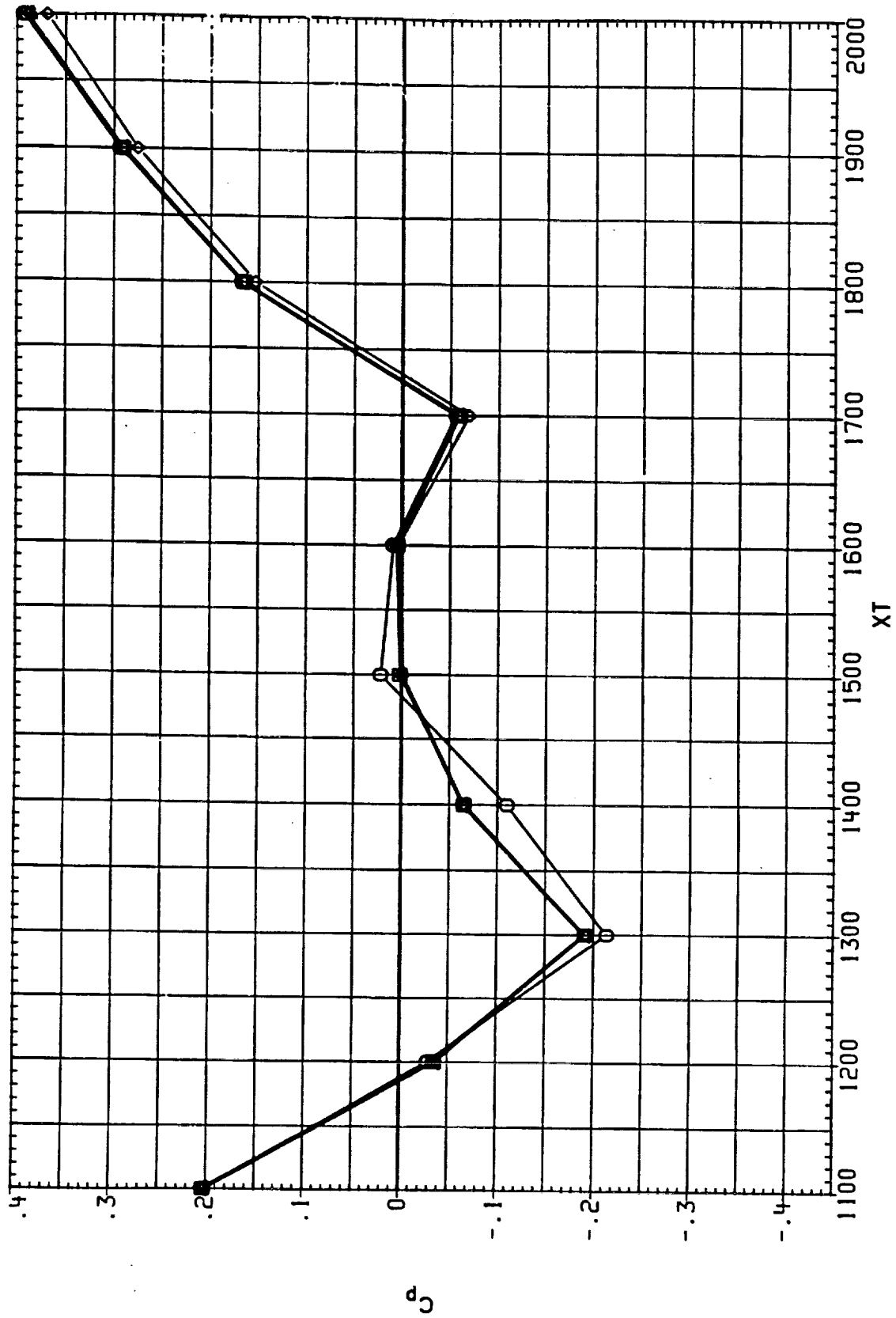


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
EXTERNAL TANK LO2 FEEDLINE

BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCONH9)	○	IA613A, B/L OT+RSRM+PLUMES SI, 2	1.550	.000	10.000	9.000
(RCONH7)	□	IA613A, B/L OT+ASRM+PLUMES SI, 3	1.550	.000	10.000	5.000
(RCONH2)	◇	IA613A, B/L OT+ASRM+PLUMES SI, 3	1.550	180.000	10.000	5.000
(RCONH0)	△	IA613A, B/L OT+ASRM+PLUMES SI, 3	1.550	999.000	10.000	5.000

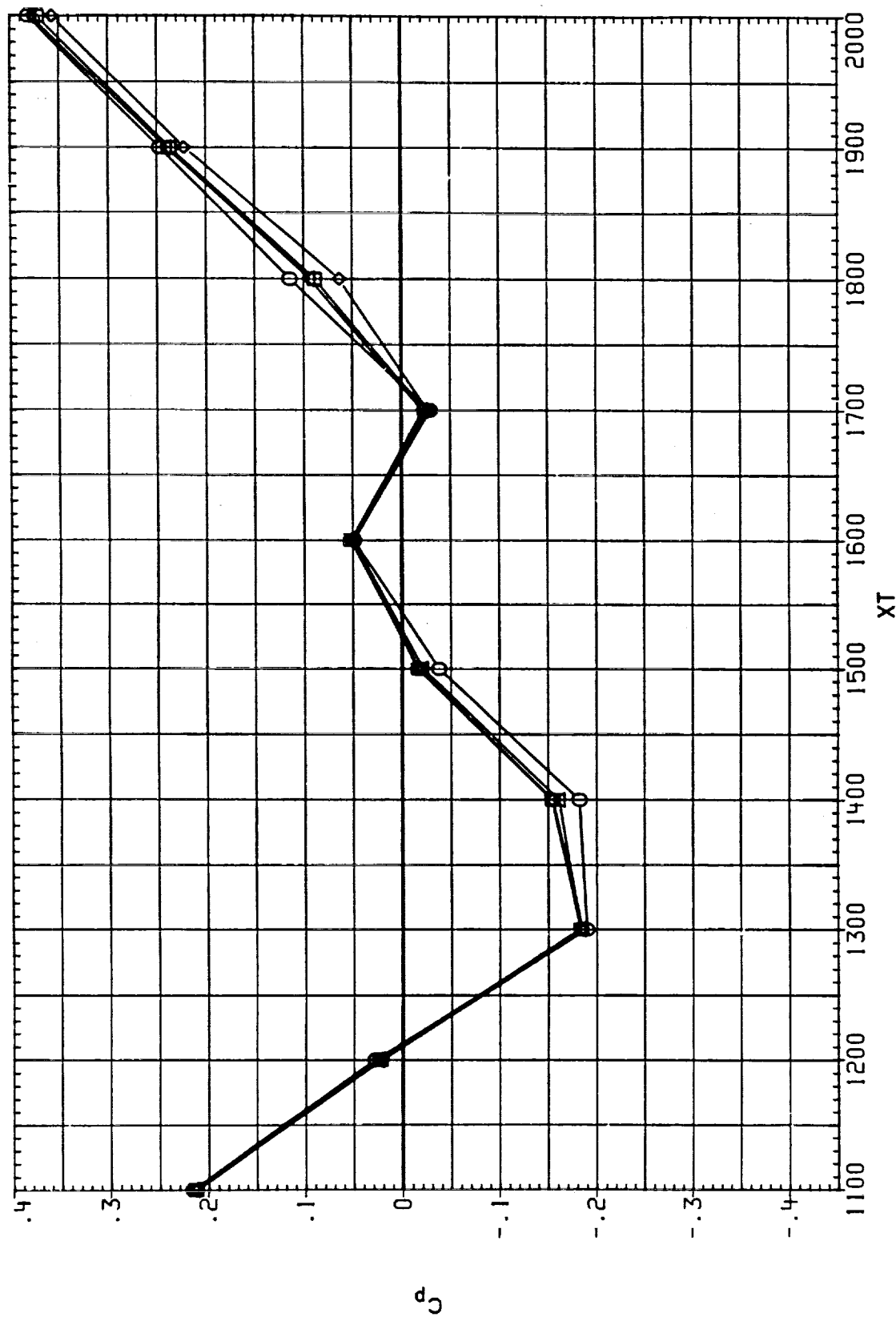


FIGURE 10 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 EXTERNAL TANK L02 FEEDLINE  
 BETA = .000 PHI = 60.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RC0515)	□	1A613A.B/L 01+RSRH+PLUMES S1.2	.600	.000	10.000	9.000
(RC0542)	○	1A613A.B/L 01+ASRH+PLUMES S1.2	.600	.000	10.000	9.000
(RC0580)	△	1A613A.B/L 01+ASRH+PLUMES S1.2	.600	180.000	10.000	9.000
(RC05C1)	◇	1A613A.B/L 01+ASRH+PLUMES S1.2	.600	999.000	10.000	5.000

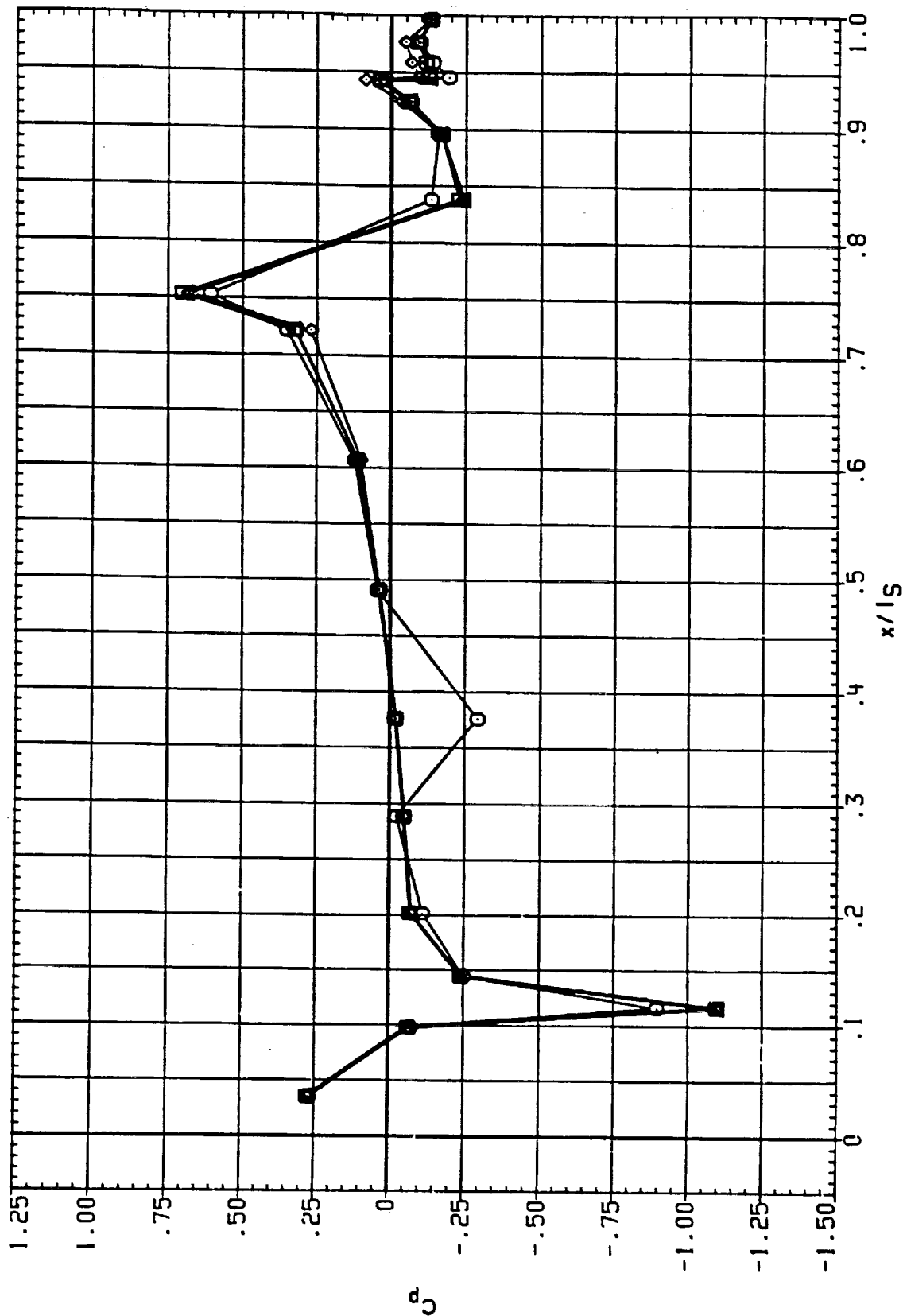


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS15)	○	IA613A,B/L OT+PSRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOS12)	◇	IA613A,B/L OT+ASRM+PLUMES SI.2	.600	.000	10.000	9.000
(RCOS80)	◇	IA613A,B/L OT+ASRM+PLUMES SI.2	.600	180.000	10.000	9.000
(RCOSC1)	△	IA613A,B/L OT+ASRM+PLUMES SI.2	.600	999.000	10.000	5.000

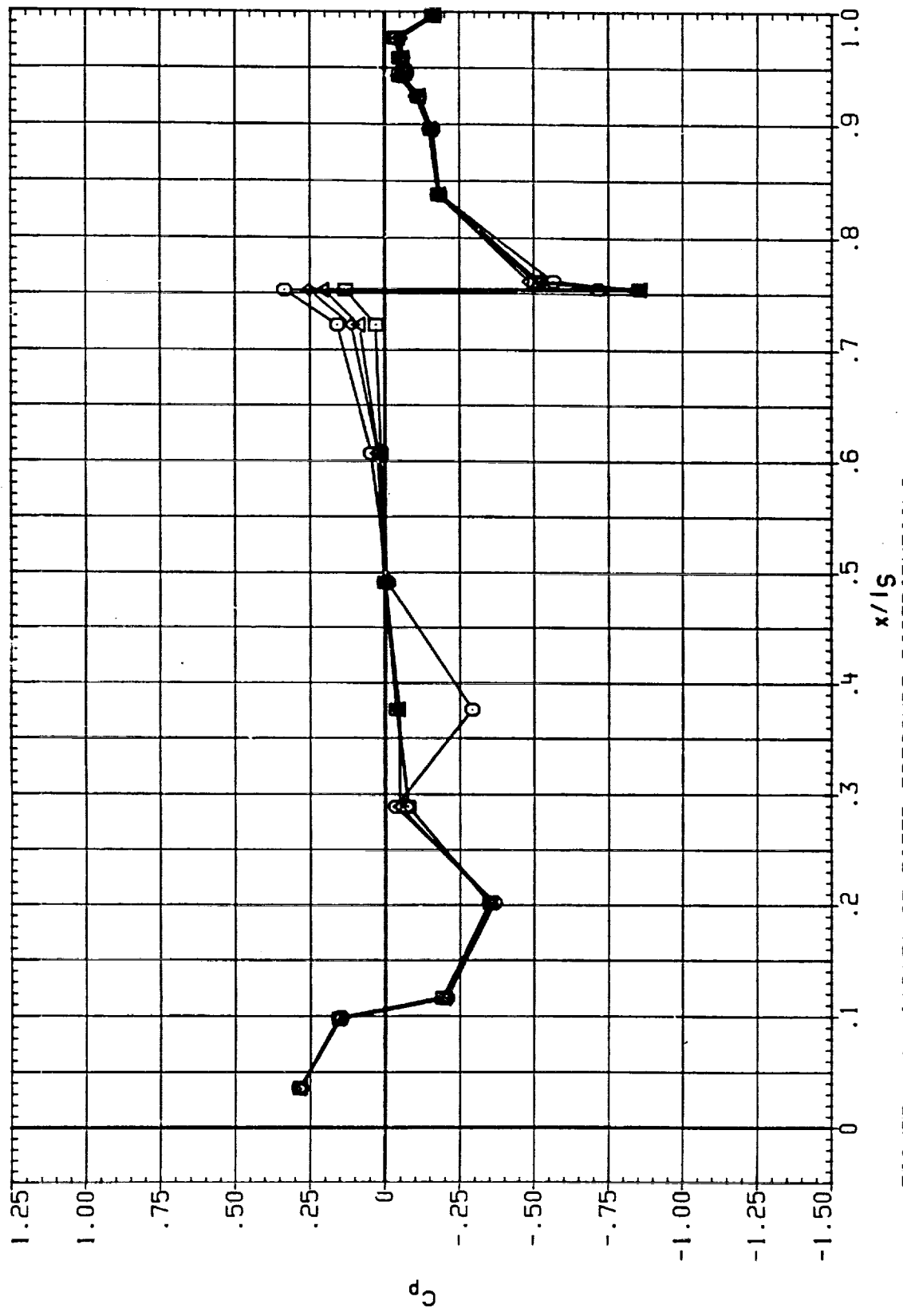


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0516)	○	IA613A, B/L OT+SRH+PLUMES SI.2	.800	.000	10.000	9.000
(RC0543)	○	IA613A, B/L OT+SRH+PLUMES SI.2	.800	.000	10.000	9.000
(RC0581)	◇	IA613A, B/L OT+SRH+PLUMES SI.2	.800	180.000	10.000	9.000

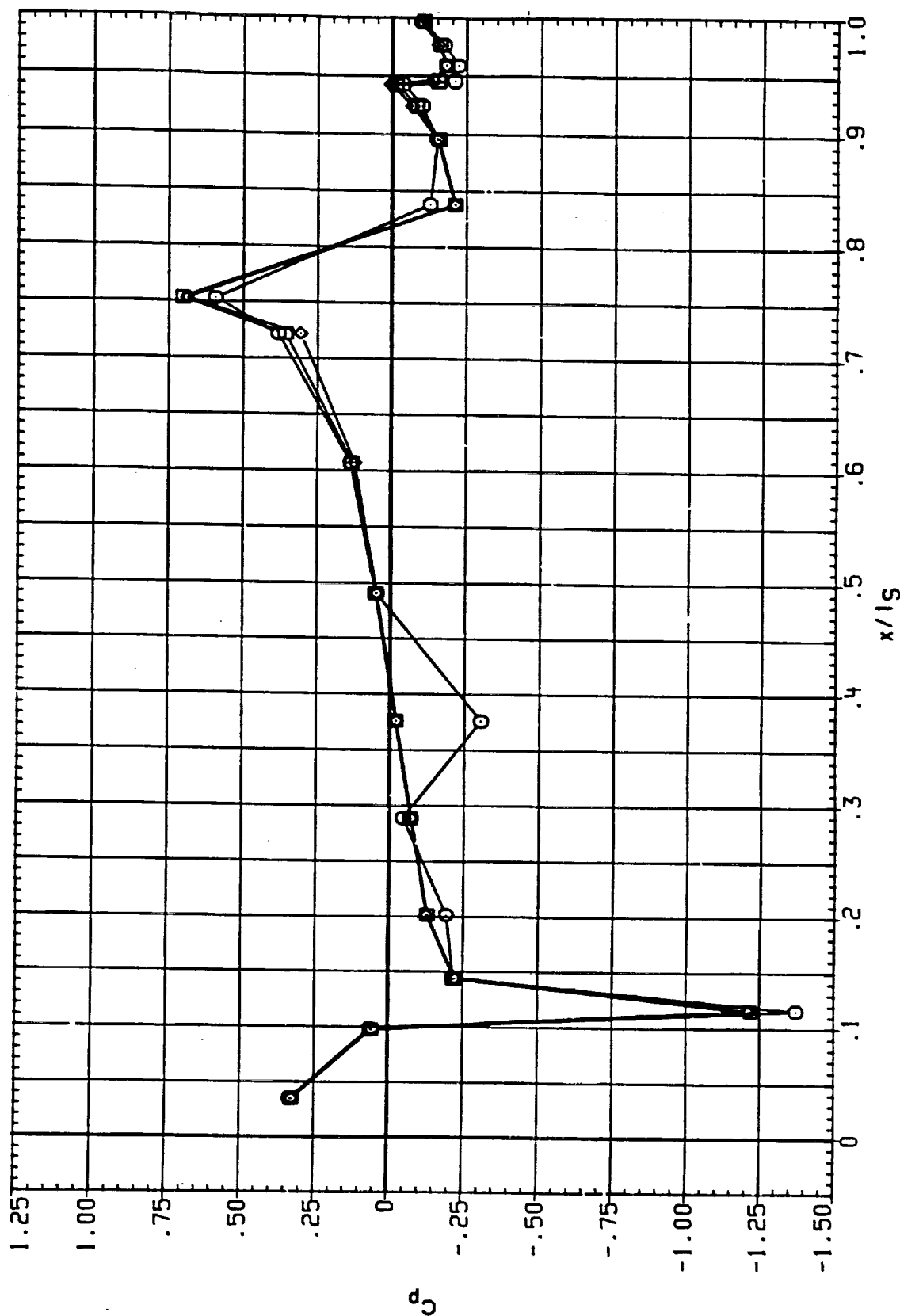


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IR-ELV	OB-ELV
(RCOS16)	○	IA613A.B/L OT+RSRM+PLUMES SI.2	-LEFT SRB	.800	.000	10.000	9.000
(RCOS43)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	-LEFT SRB	.800	.000	10.000	9.000
(RCOS81)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	-LEFT SRB	.800	160.000	10.000	9.000

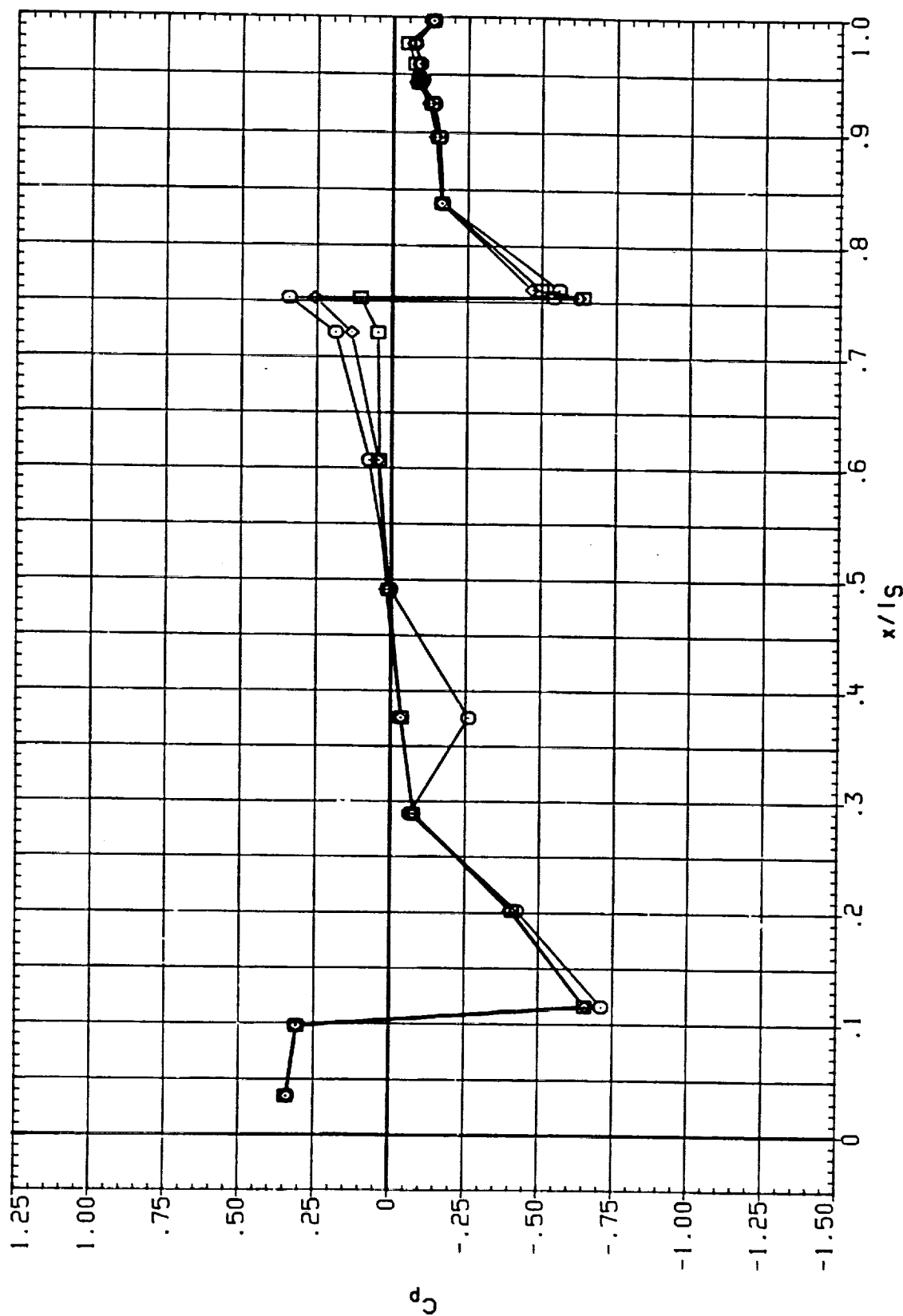


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IE480X	IB-ELV	OB-ELV
(RC0517)	○	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	.000	10.000	9.000
(RC0544)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	.000	10.000	9.000
(RC0582)	◇	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	180.000	10.000	9.000
(RC05C2)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	.900	999.000	10.000	5.000

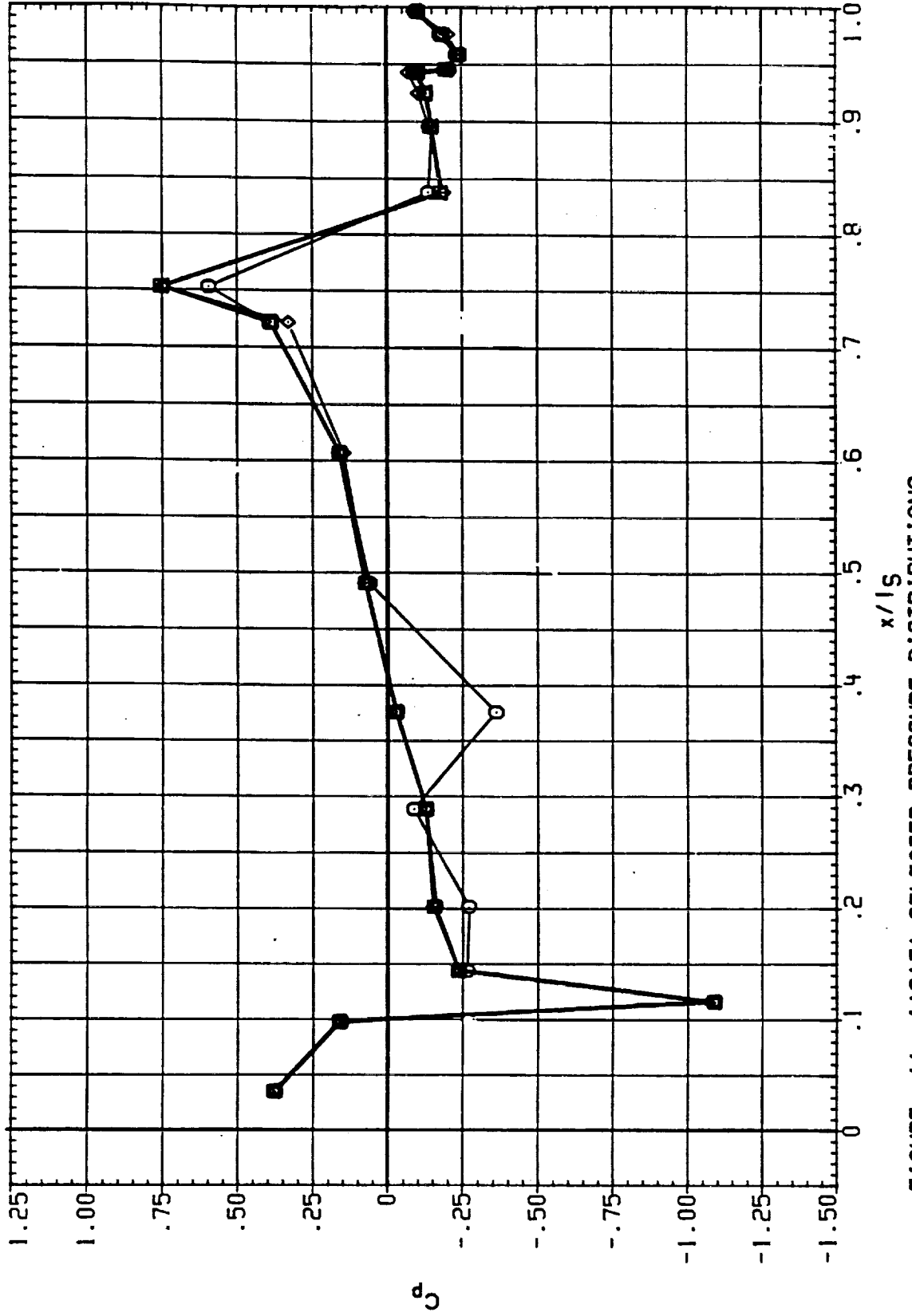


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	HACH	IEABOX	IB-ELV	OB-ELV
(RC0517)	○	IA613A,B/L OT+RSRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0544)	◇	IA613A,B/L OT+ASRM+PLUMES S1.2	.900	.000	10.000	9.000
(RC0582)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	.900	180.000	10.000	9.000
(RC05C2)	△	IA613A,B/L OT+ASRM+PLUMES S1.2	.900	999.000	10.000	5.000

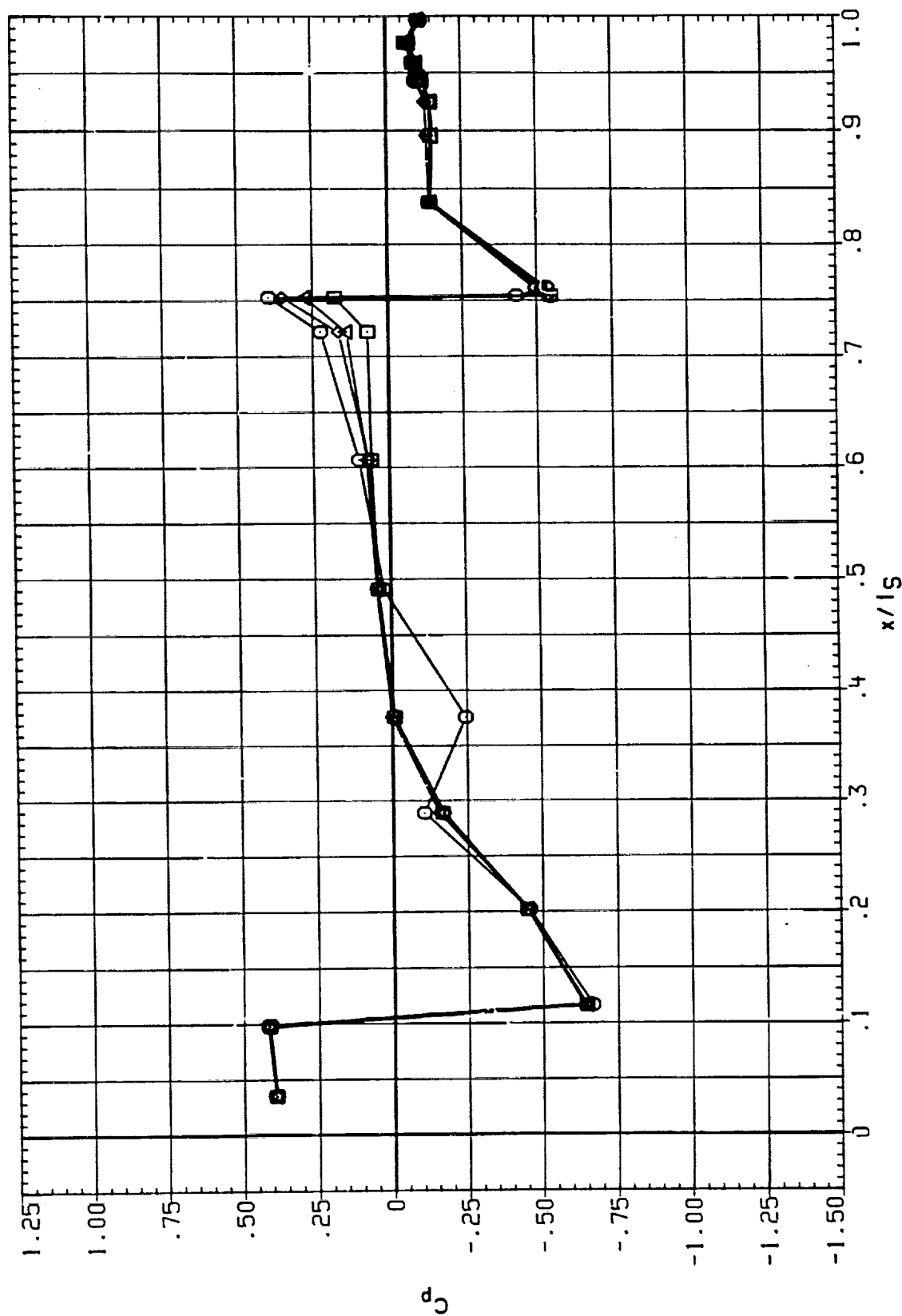


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS18)	○	IA613A.B/L OT+RSRM+PLUNES S1.2	.950	.000	10.000	9.000
(RCOS45)	□	IA613A.B/L OT+ASRM+PLUNES S1.2	.950	.000	10.000	9.000
(RCOS83)	△	IA613A.B/L OT+ASRM+PLUNES S1.2	.950	180.000	10.000	9.000

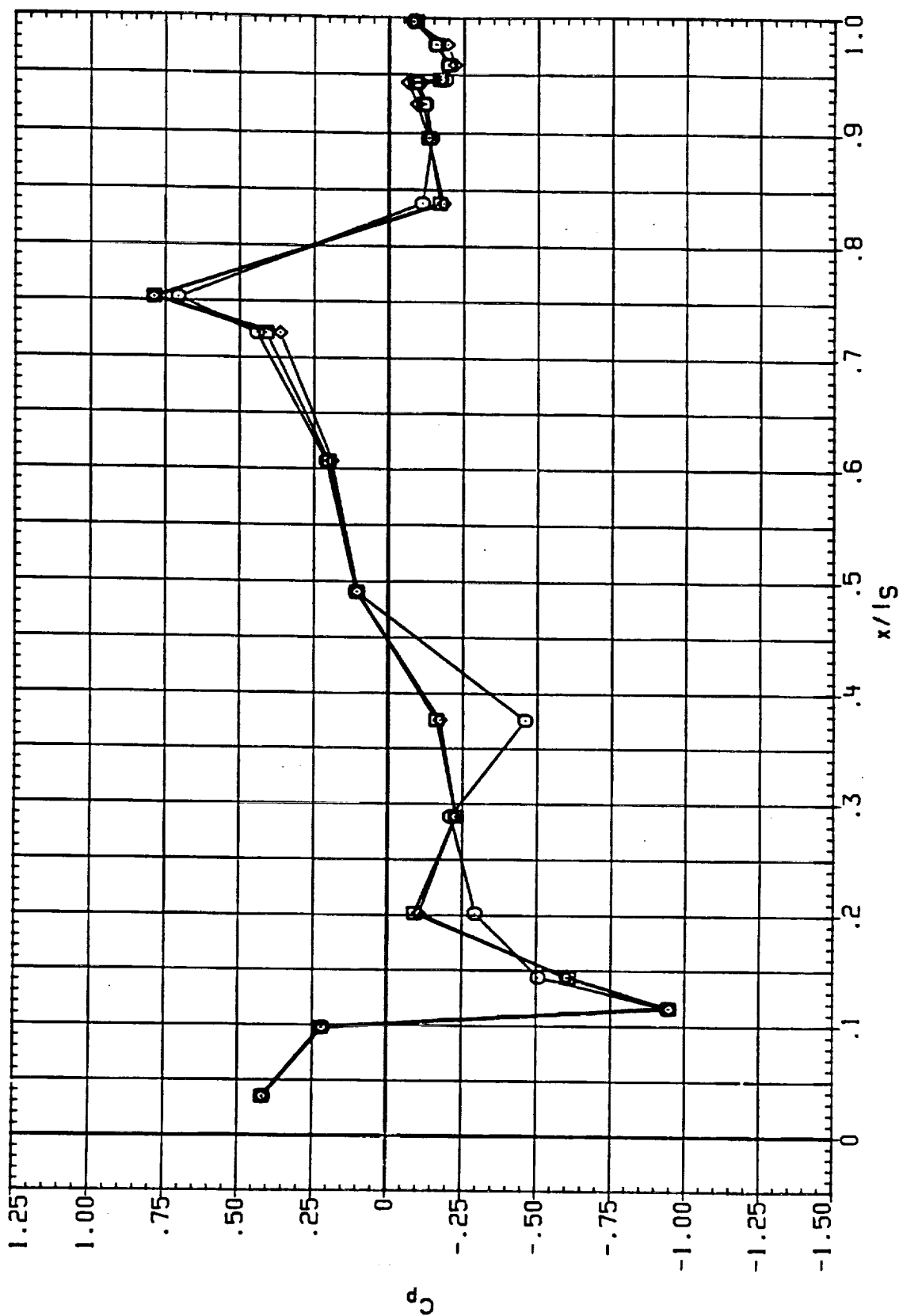


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC0518)	○	IA613A, B/L OT+RSRM+PLUMES S1.2	-LEFT SRB	.950	.000	10.000	9.000
(RC0545)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	.950	.000	10.000	9.000
(RC0583)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	.950	180.000	10.000	9.000

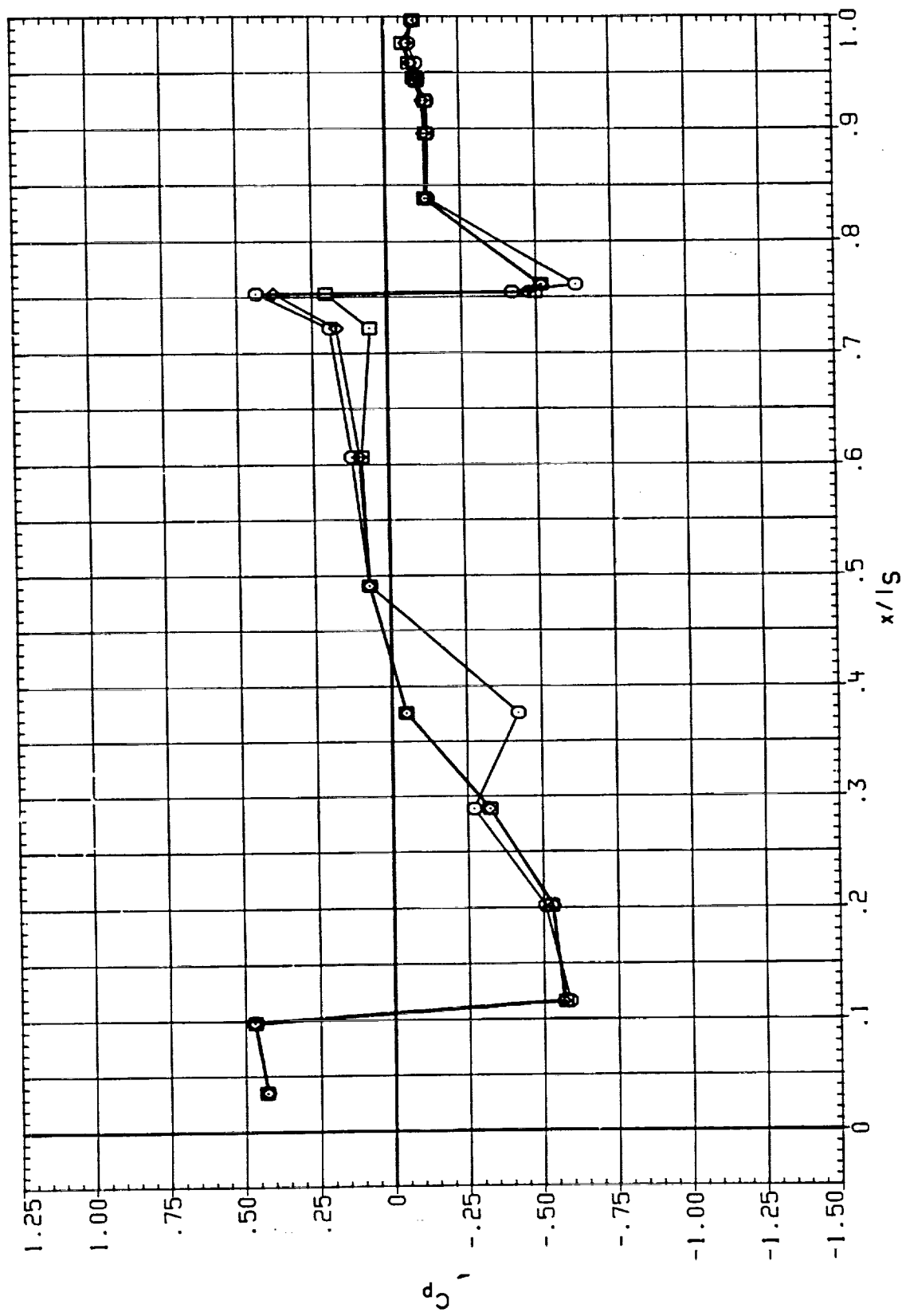


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS19)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOS46)	◻	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOS84)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

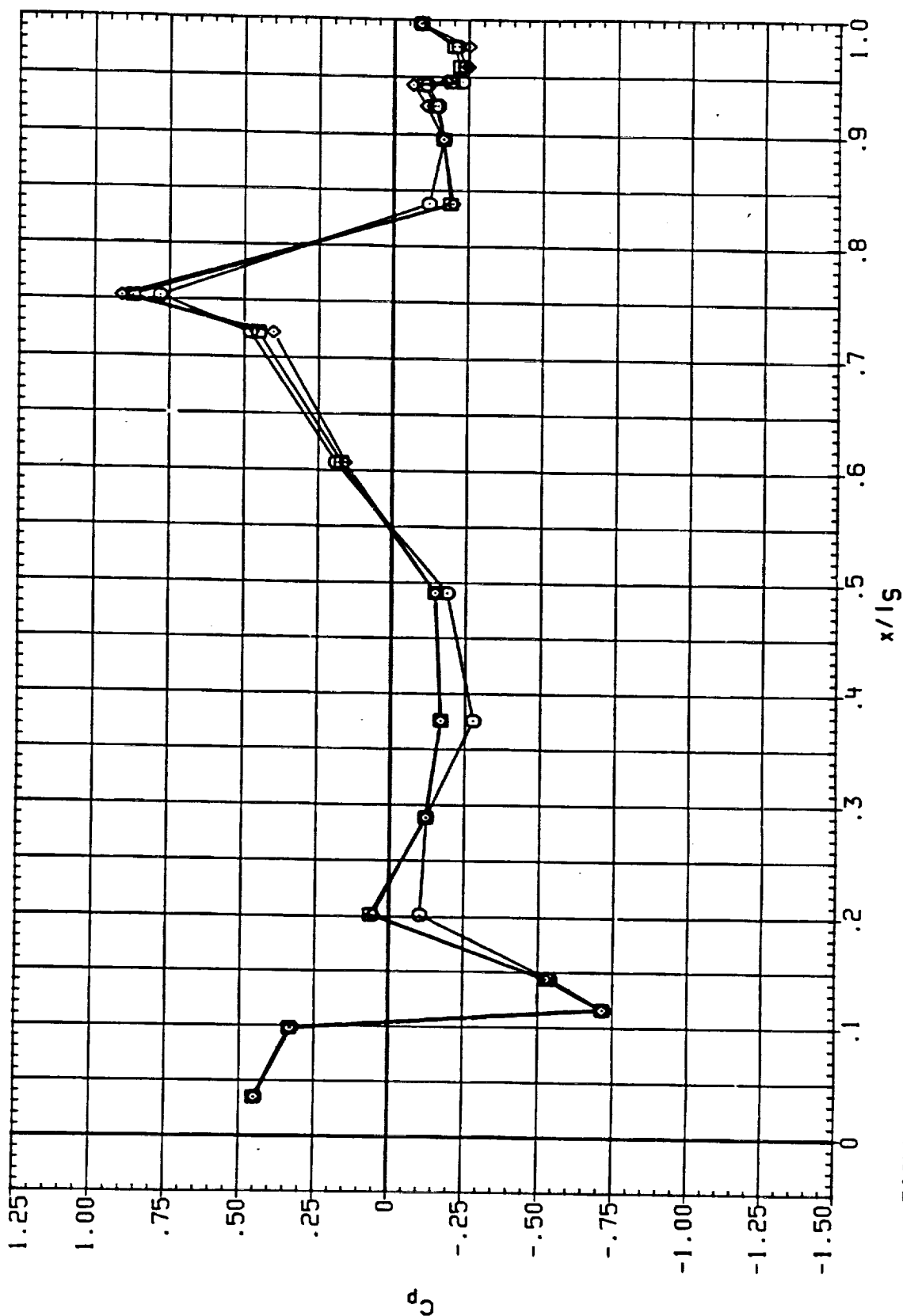


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	1EABOX	1B-ELV	OB-ELV
(RC0519)	○	IA613A.6/L OT+RSRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0546)	□	IA613A.8/L OT+ASRM+PLUMES S1.2	1.050	.000	10.000	9.000
(RC0589)	◇	IA613A.8/L OT+ASRM+PLUMES S1.2	1.050	180.000	10.000	9.000

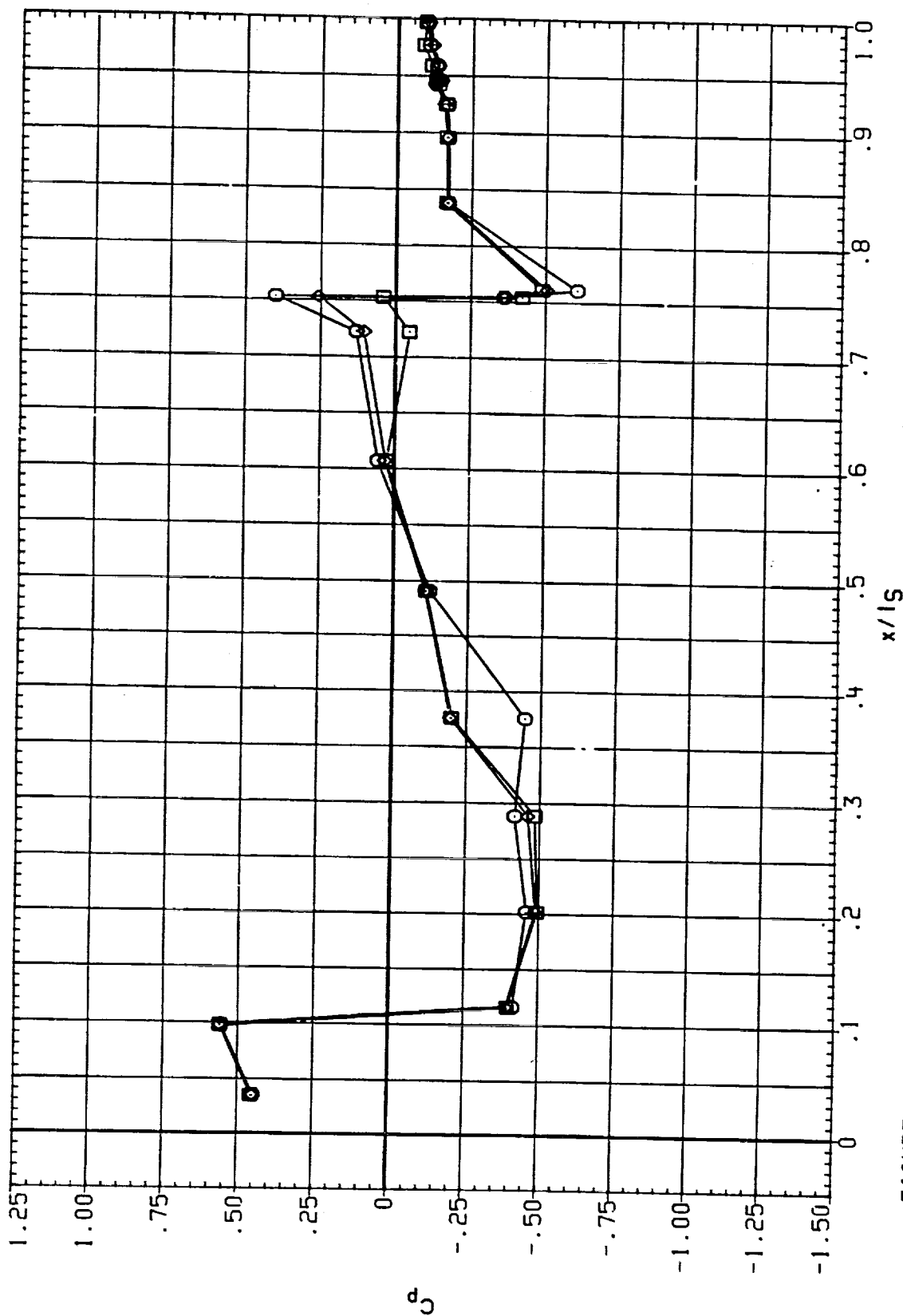


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEASMA	IE-ELC	IE-ELC
(RC0520)	IA613A, B/L 01+RSRH+PLUMES S1.2	-LEFT SRB	1.100	.000	10.000	9.000
(RC0547)	IA613A, B/L 01+ASRH+PLUMES S1.2	-LEFT SRB	1.100	.000	10.000	9.000
(RC0585)	IA613A, B/L 01+ASRH+PLUMES S1.2	-LEFT SRB	1.100	180.000	10.000	9.000
(RC05C3)	IA613A, B/L 01+ASRH+PLUMES S1.2	-LEFT SRB	1.100	999.000	10.000	5.000

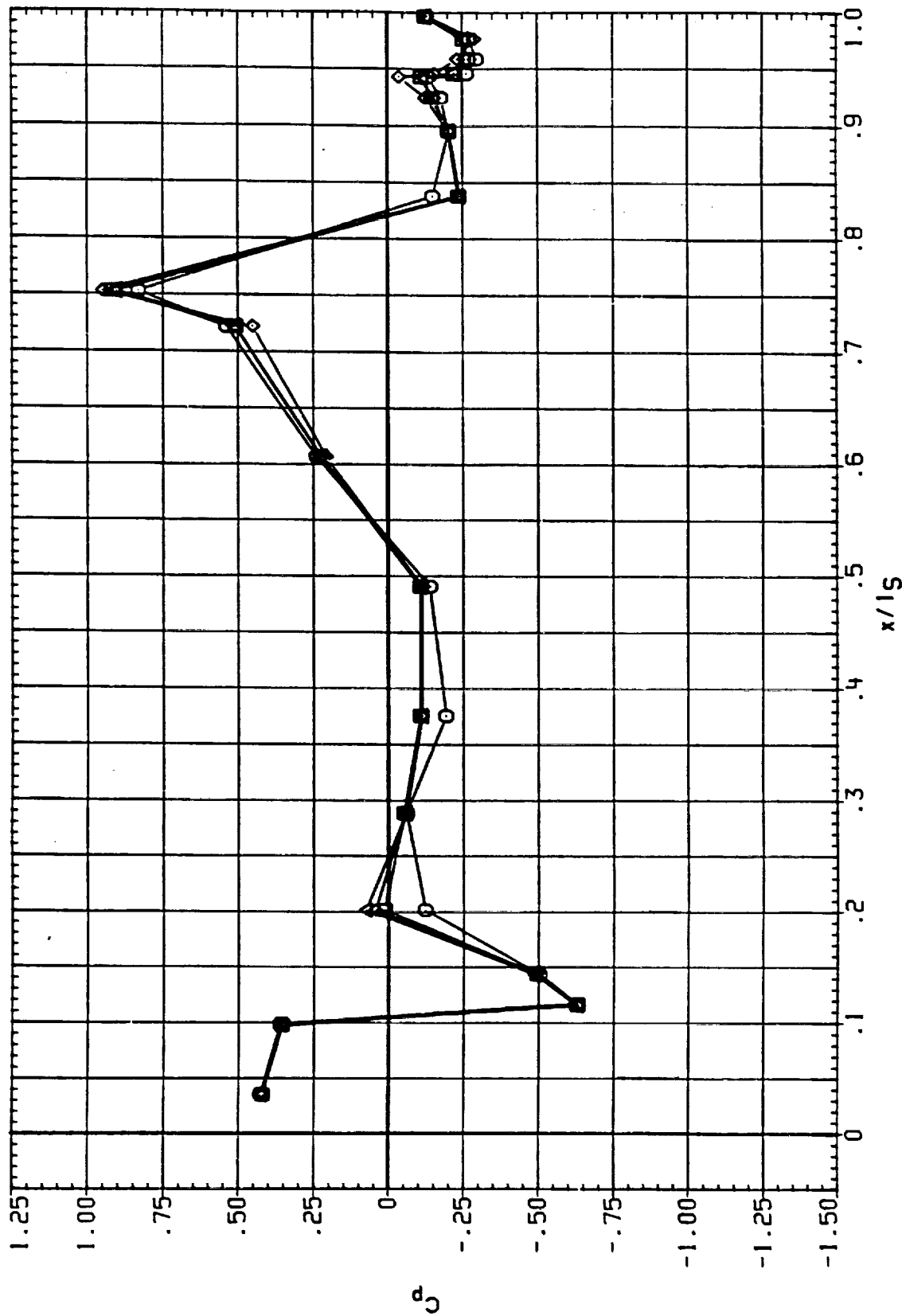


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 PHI = 225.000 ALPHA = .000  
 LEFT SRB

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC0520)	○	1A613A, B/L 01-ASRM-PLUMES S1.2	-LEFT SRB	1.100	.000	10.000	9.000
(RC0547)	□	1A613A, B/L 01-ASRM-PLUMES S1.2	-LEFT SRB	1.100	.000	10.000	9.000
(RC0585)	△	1A613A, B/L 01-ASRM-PLUMES S1.2	-LEFT SRB	1.100	180.000	10.000	9.000
(RC05C3)	◇	1A613A, B/L 01-ASRM-PLUMES S1.2	-LEFT SRB	1.100	999.000	10.000	5.000

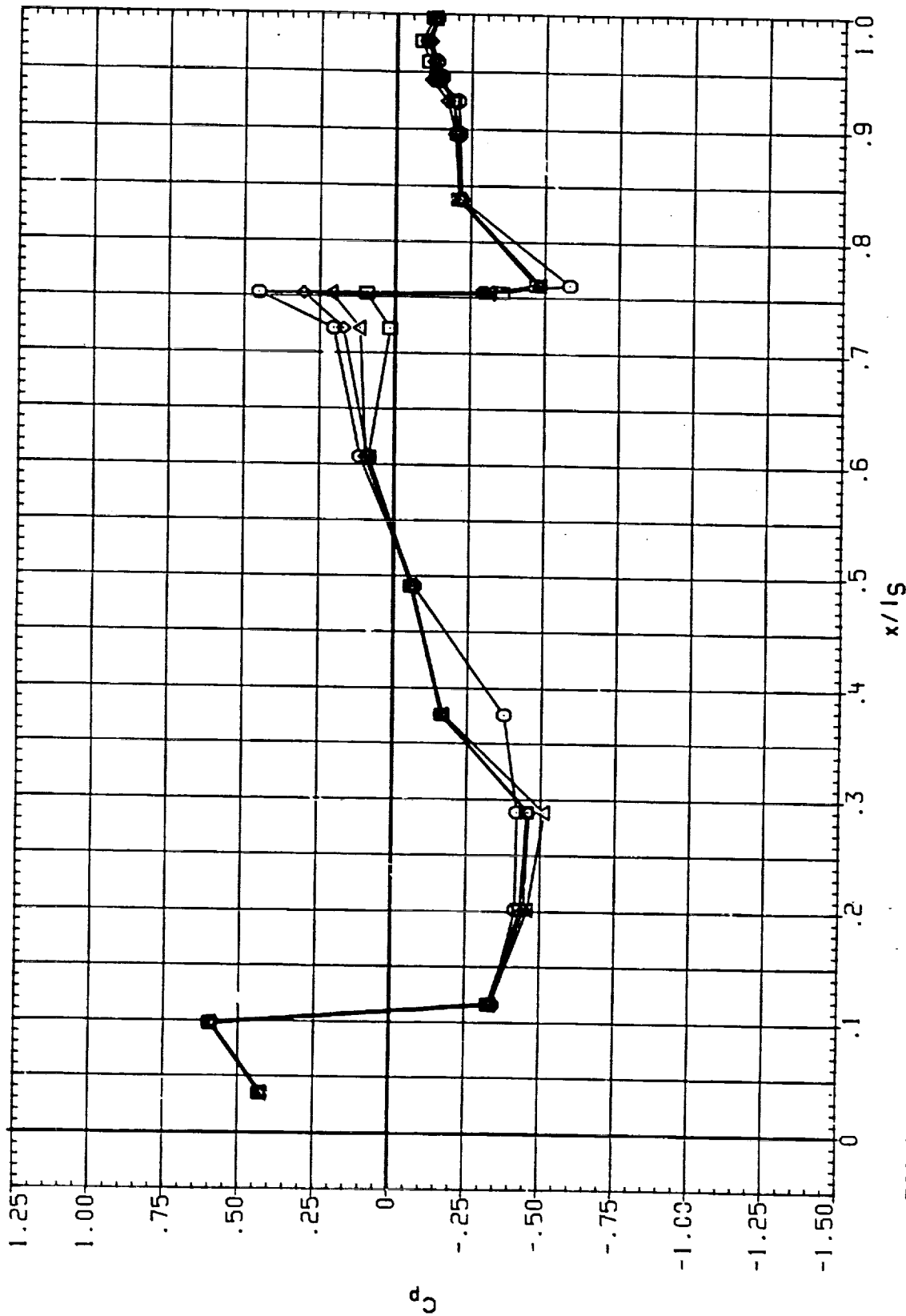


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CUNFIGURATION DESCRIPTION	LEFT SRB	MACH	ICABOX	IB-ELV	OB-ELV
(RC0521)	○	IA613A, B/L OT+RSRH+PLUMES SI,2	-LEFT SRB	1.150	.000	10.000	9.000
(RC0548)	◇	IA613A, B/L OT+ASRH+PLUMES SI,2	-LEFT SRB	1.150	.000	10.000	9.000
(RC0586)	△	IA613A, B/L OT+ASRH+PLUMES SI,2	-LEFT SRB	1.150	180.000	10.000	9.000
(XC05C4)		IA613A, B/L OT+ASRH+PLUMES SI,2	-LEFT SRB	1.150	999.000	10.000	5.000

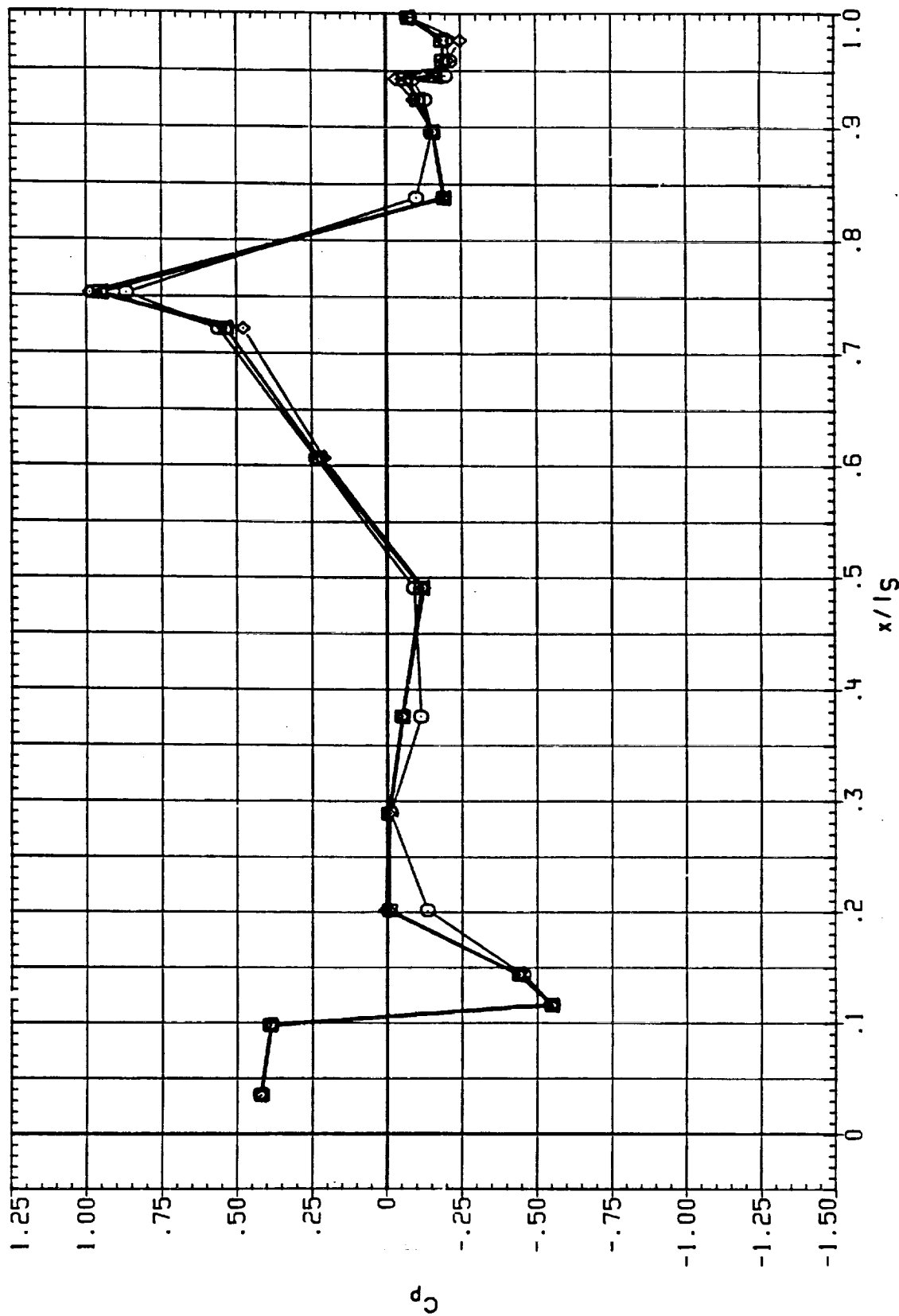


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0521)	○	1A613A, B/L OT+RSRM+PLUMES SI,2	1.150	.000	10.000	9.000
(RC0548)	◇	1A613A, B/L OT+ASRM+PLUMES SI,2	1.150	.000	10.000	9.000
(RC0586)	◇	1A613A, B/L OT+ASRM+PLUMES SI,2	1.150	180.000	10.000	9.000
(XC05C4)	△	1A613A, B/L OT+ASRM+PLUMES SI,2	1.150	999.000	10.000	5.000

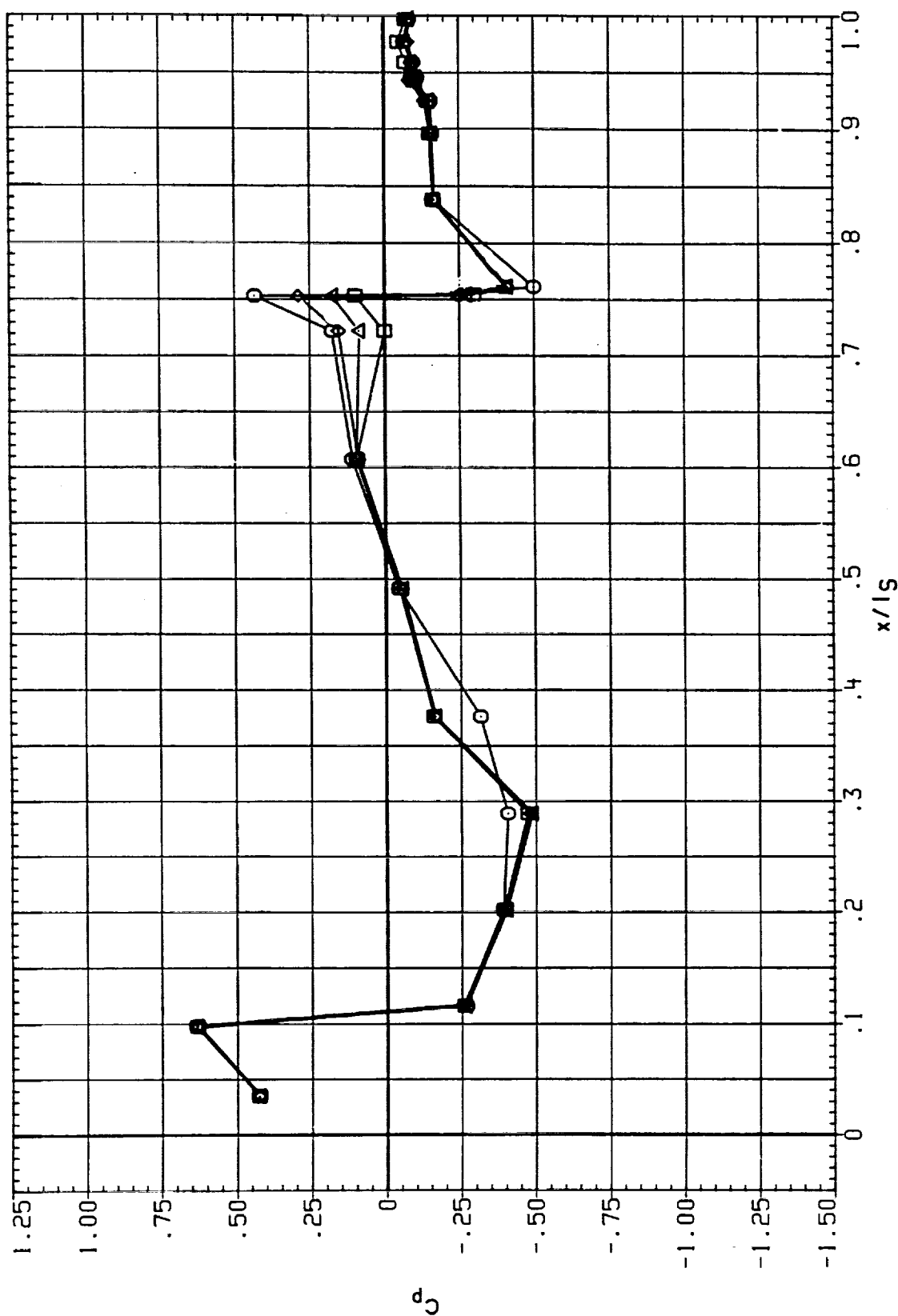


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC05221)	□	IA613A.B/L OT*ASRH+PLUHS S1.2	1.250	.000	10.000	9.000
(RC05491)	◇	IA613A.B/L OT*ASRH+PLUHS S1.2	1.250	.000	10.000	9.000
(RC0587)	△	IA613A.B/L OT*ASRH+PLUHS S1.2	1.250	180.000	10.000	9.000
(RC05C5)		IA613A.B/L OT*ASRH+PLUHS S1.2	1.250	999.000	10.000	5.000

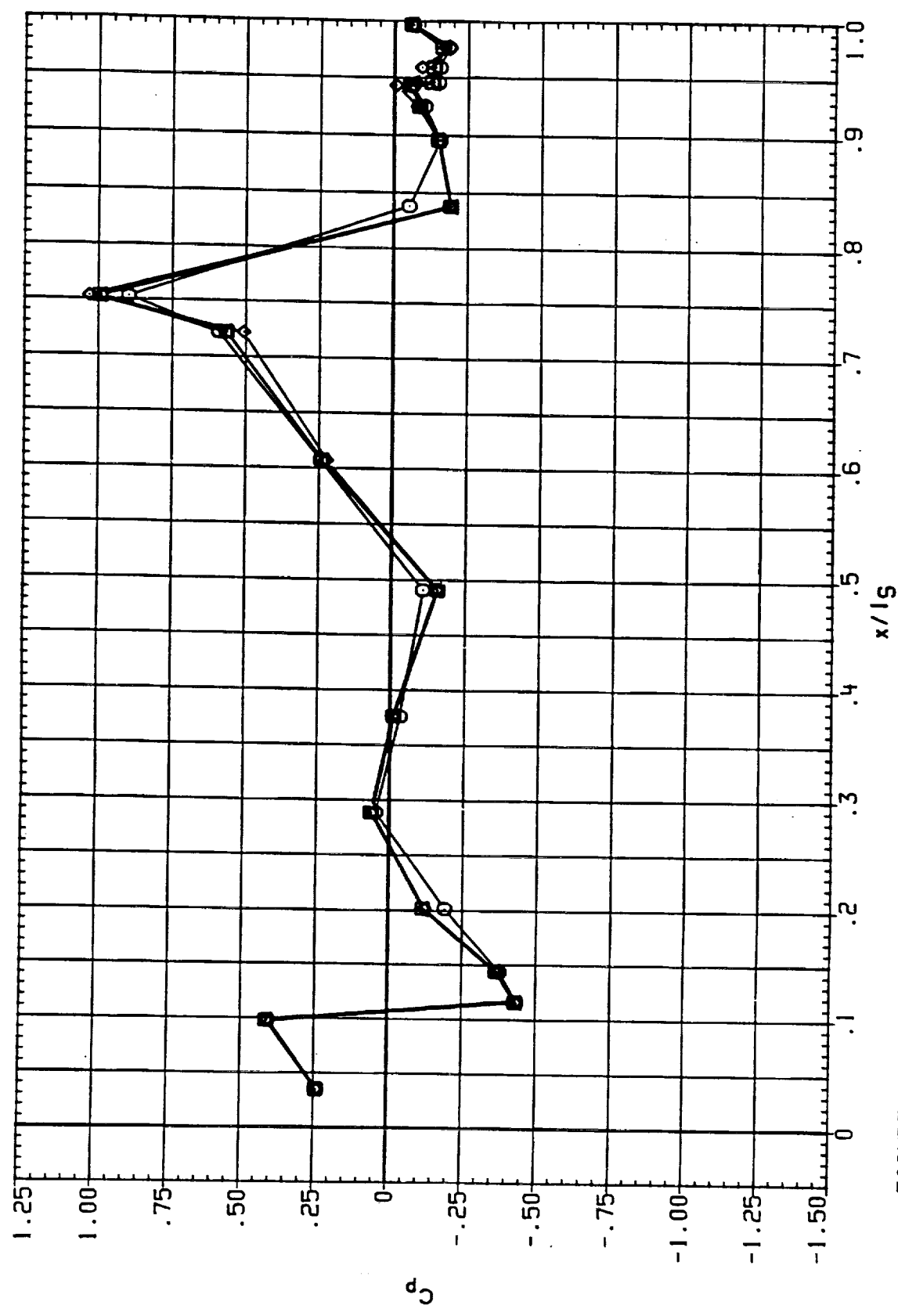


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC0522)	○	IA613A.B/L OT+SRM+PLUMES SI.2	-LEFT SRB	1.250	.000	10.000	9.000
(RC0549)	□	IA613A.B/L OT+ASRM+PLUMES SI.2	-LEFT SRB	1.250	.000	10.000	9.000
(RC0587)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	-LEFT SRB	1.250	180.000	10.000	9.000
(RC05C5)	△	IA613A.B/L OT+ASRM+PLUMES SI.2	-LEFT SRB	1.250	999.000	10.000	5.000

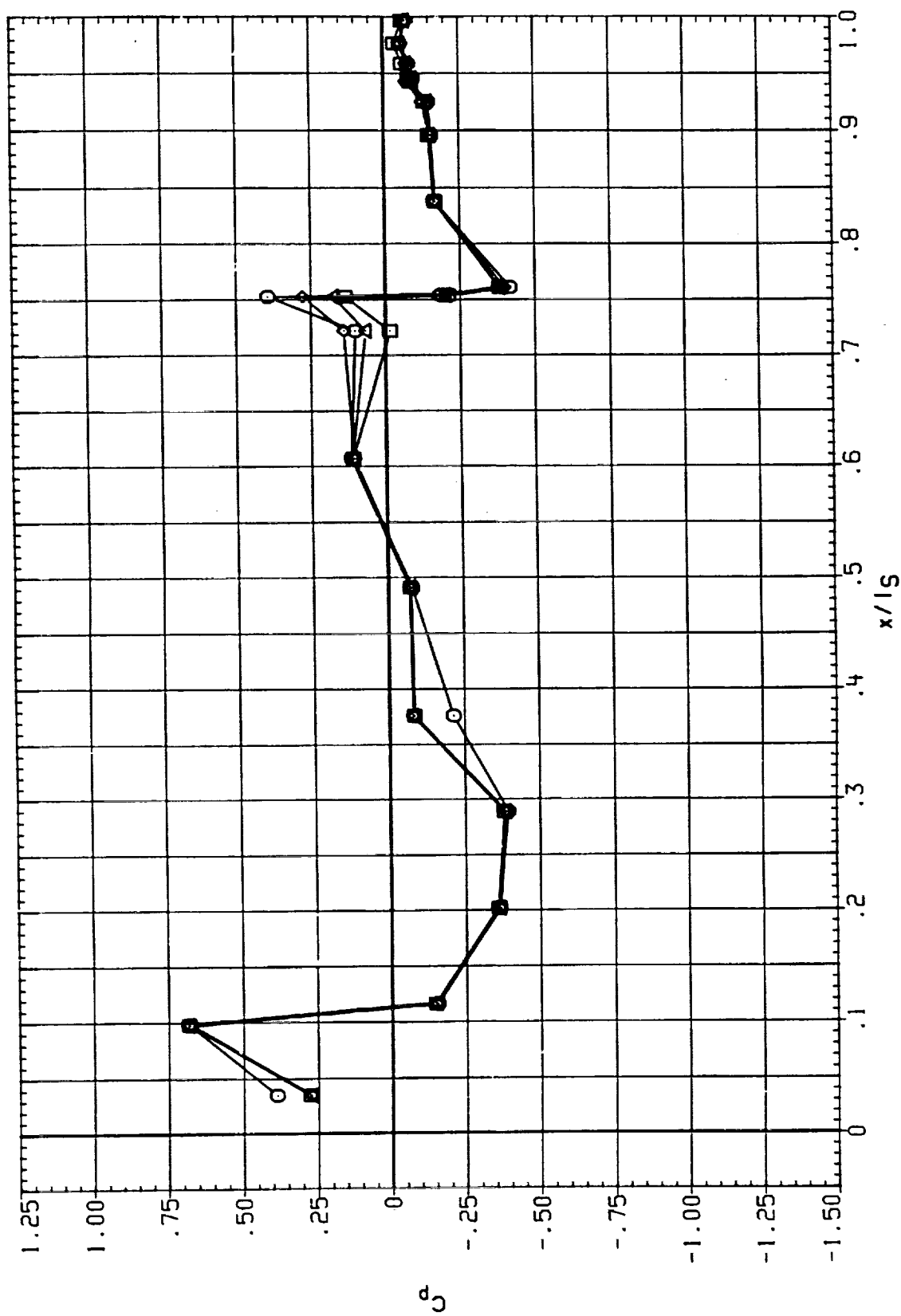


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC05H6)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	-LEFT SRB	1.300	.000	10.000	9.000
(RC0554)	□	IA613A, B/L OT+ASRH+PLUMES SI.3	-LEFT SRB	1.300	.000	10.000	5.000
(RC0589)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	-LEFT SRB	1.300	180.000	10.000	5.000
(RC05C7)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	-LEFT SRB	1.300	999.000	10.000	5.000

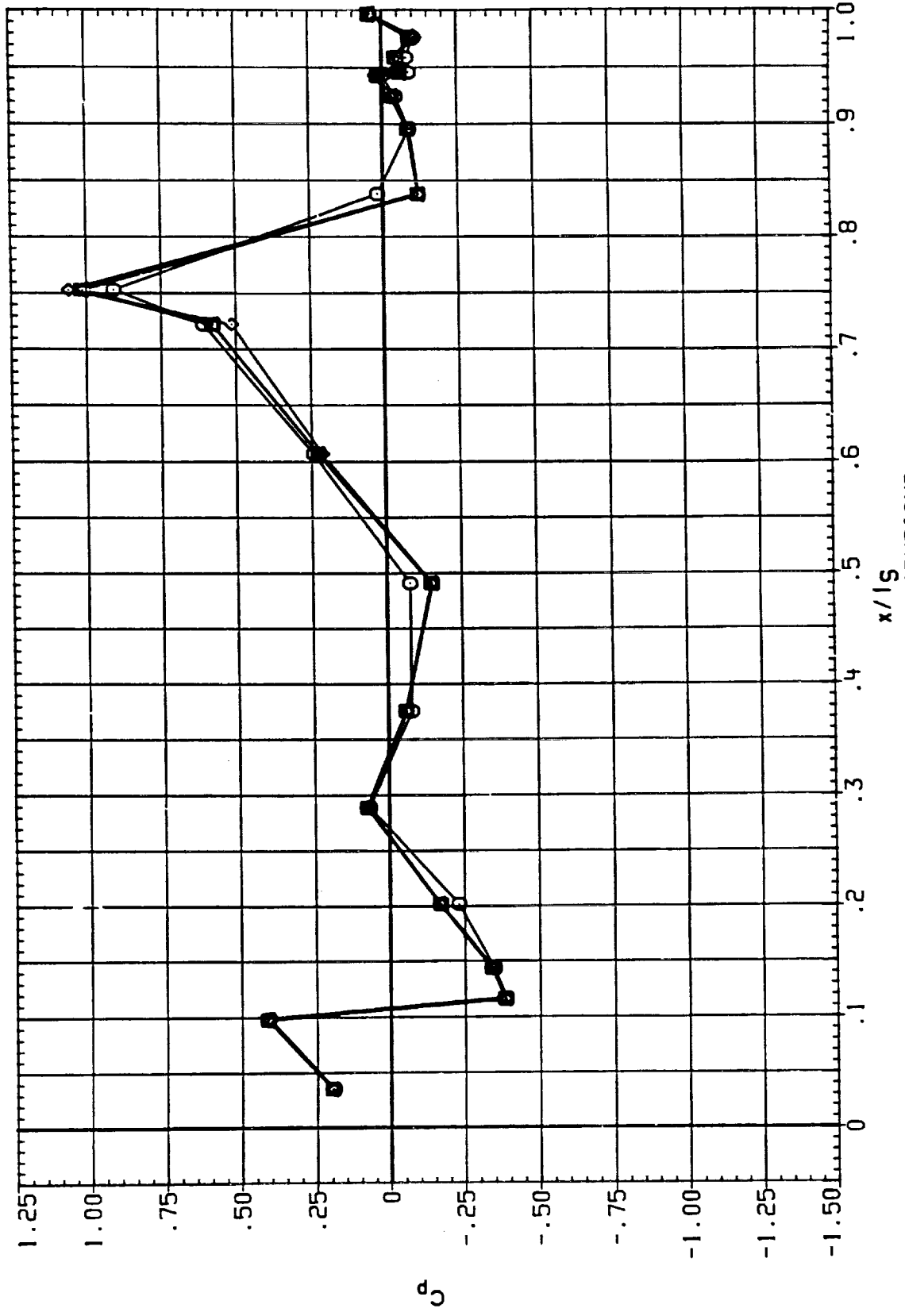


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET SYMBOL CONFIGURATION DESCRIPTION

(RC05H6)	○	IA613A, B/L OT+RSRM+PLUMES SI, 2
(RC0554)	□	IA613A, B/L OT+ASRM+PLUMES SI, 3
(RC0583)	◇	IA613A, B/L OT+ASRM+PLUMES SI, 3
(RC05C7)	△	IA613A, B/L OT+ASRM+PLUMES SI, 3

LEFT SRB  
LEFT SRB  
LEFT SRB

IEABOX  
.000  
.000  
180.000  
999.000

MACH  
1.300  
1.300  
1.300

IB-ELV  
10.000  
10.000  
10.000

OB-ELV  
9.000  
5.000  
5.000

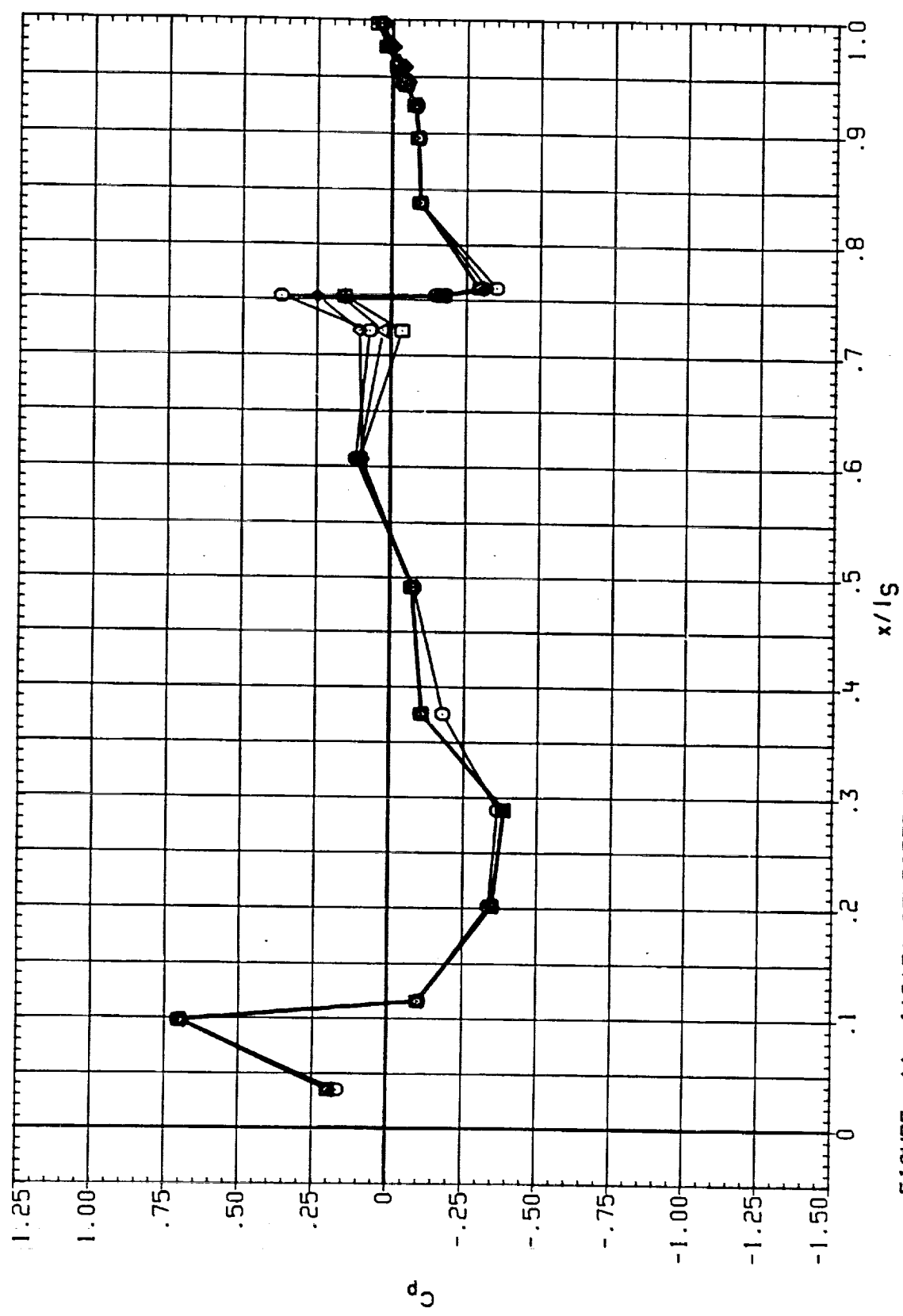


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000

PAGE 270

DATA SET	SYMBOL	CONF IGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOSH7)	□	1A613A.B/L OT+RSPH+PLUMES SI.2	1.350	.000	10.000	9.000
(RCOS55)	◇	1A613A.B/L OT+ASRH+PLUMES SI.3	1.350	.000	10.000	5.000
(RCOS90)	◇	1A613A.B/L OT+ASRH+PLUMES SI.3	1.350	180.000	10.000	5.000
(RCOS81)	△	1A613A.B/L OT+ASRH+PLUMES SI.3	1.350	999.000	10.000	5.000

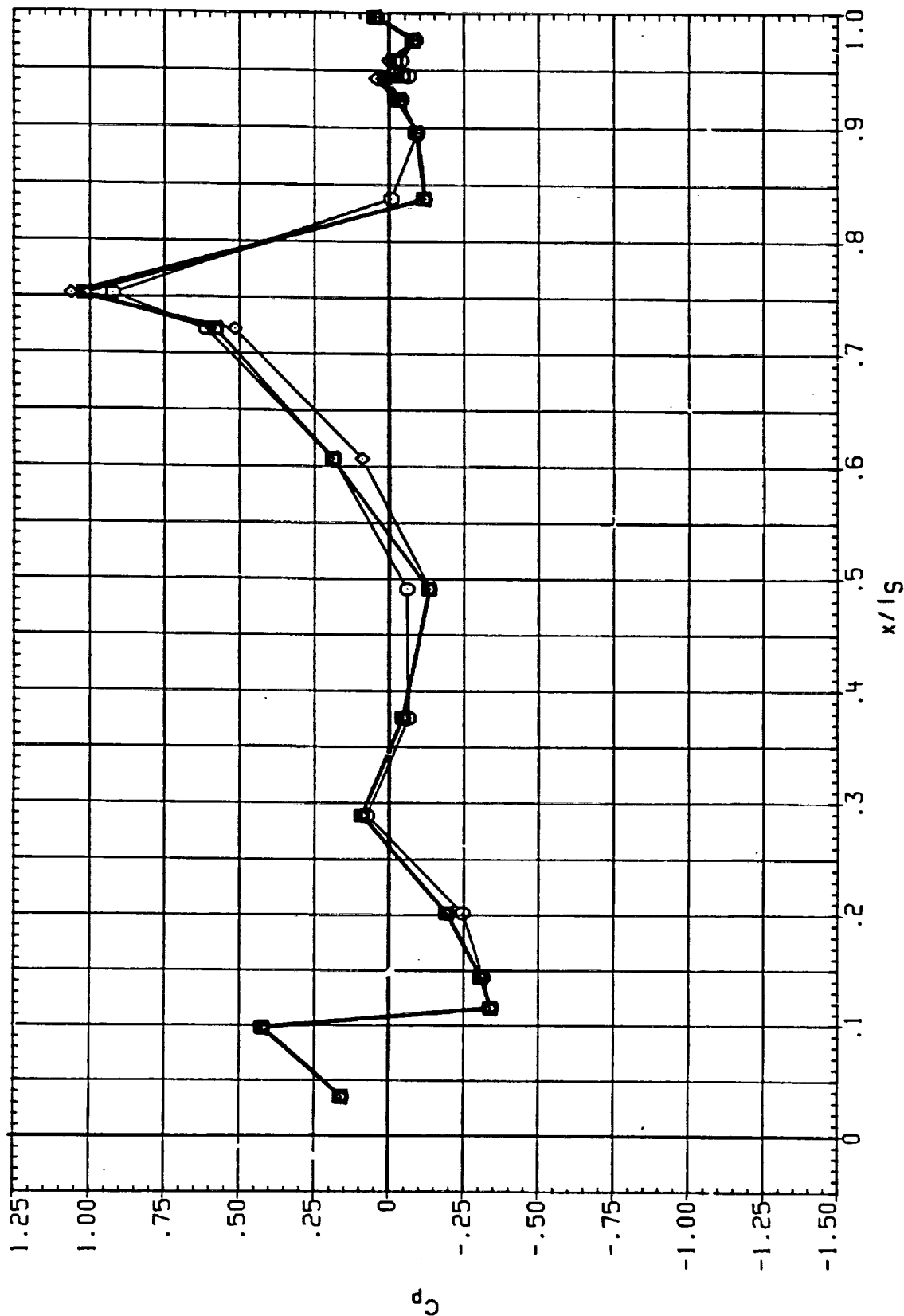


FIGURE 11 1A613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RCOSH7)	○	IA613A,B/L OT+ASRM+PLUMES S1.2	-LEFT SRB	1.350	.000	10.000	9.000
(RCOSH3)	□	IA613A,B/L OT+ASRM+PLUMES S1.3	-LEFT SRB	1.350	.000	10.000	5.000
(RCOSH9)	◇	IA613A,B/L OT+ASRM+PLUMES S1.3	-LEFT SRB	1.350	180.000	10.000	5.000
(RCOSH8)	△	IA613A,B/L OT+ASRM+PLUMES S1.3	-LEFT SRB	1.350	999.000	10.000	5.000

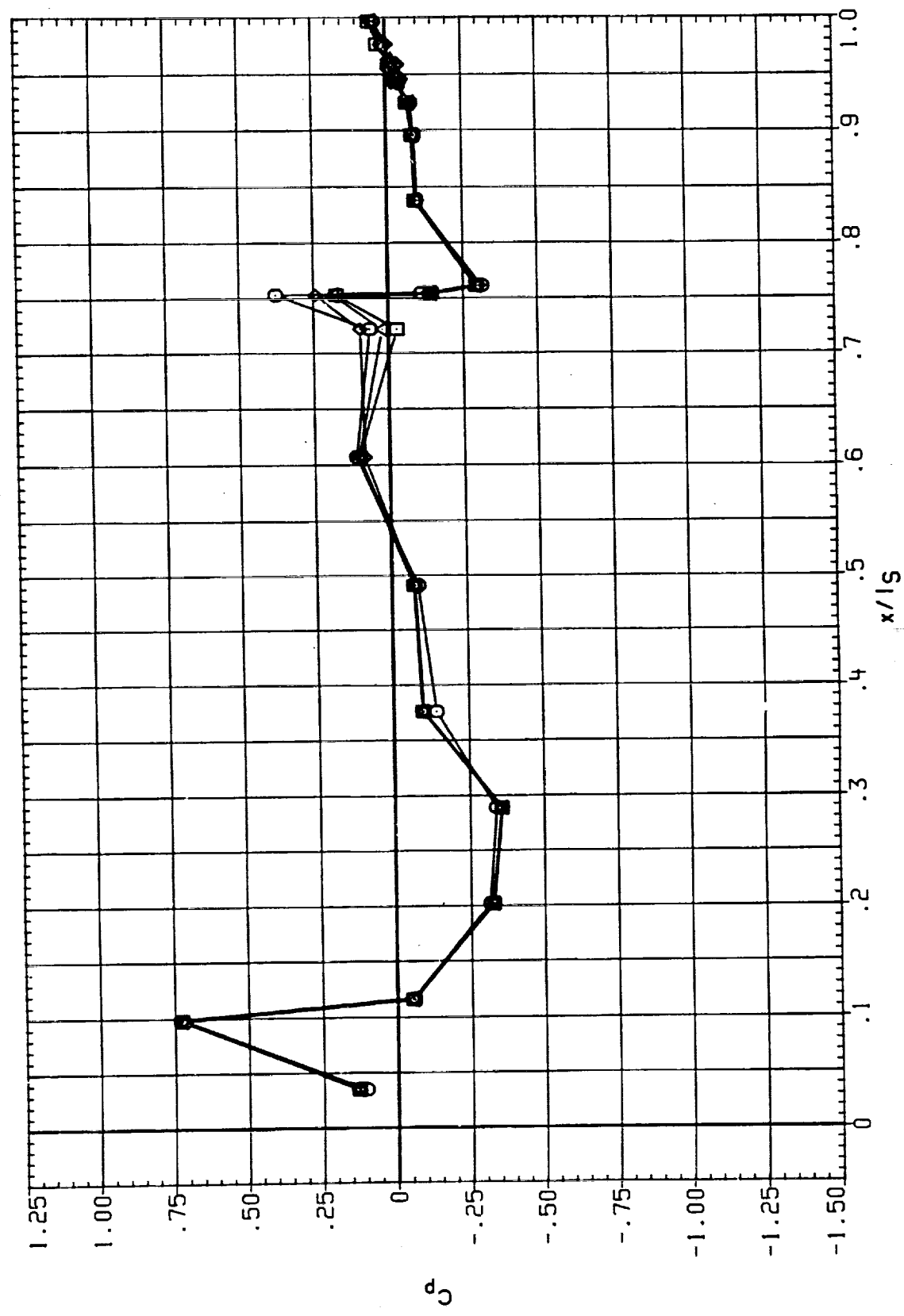


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000      PHI = 270.000      ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOSH8)	○	IA613A, B/L OT+RSRH+PLUMES SI.2	1.400	.000	10.000	9.000
(RCOSH6)	□	IA613A, B/L OT+ASRH+PLUMES SI.3	1.400	.000	10.000	5.000
(RCOSH9)	◇	IA613A, B/L OT+ASRH+PLUMES SI.3	1.400	180.000	10.000	5.000
(RCOSH9)	△	IA613A, B/L OT+ASRH+PLUMES SI.3	1.400	999.000	10.000	5.000

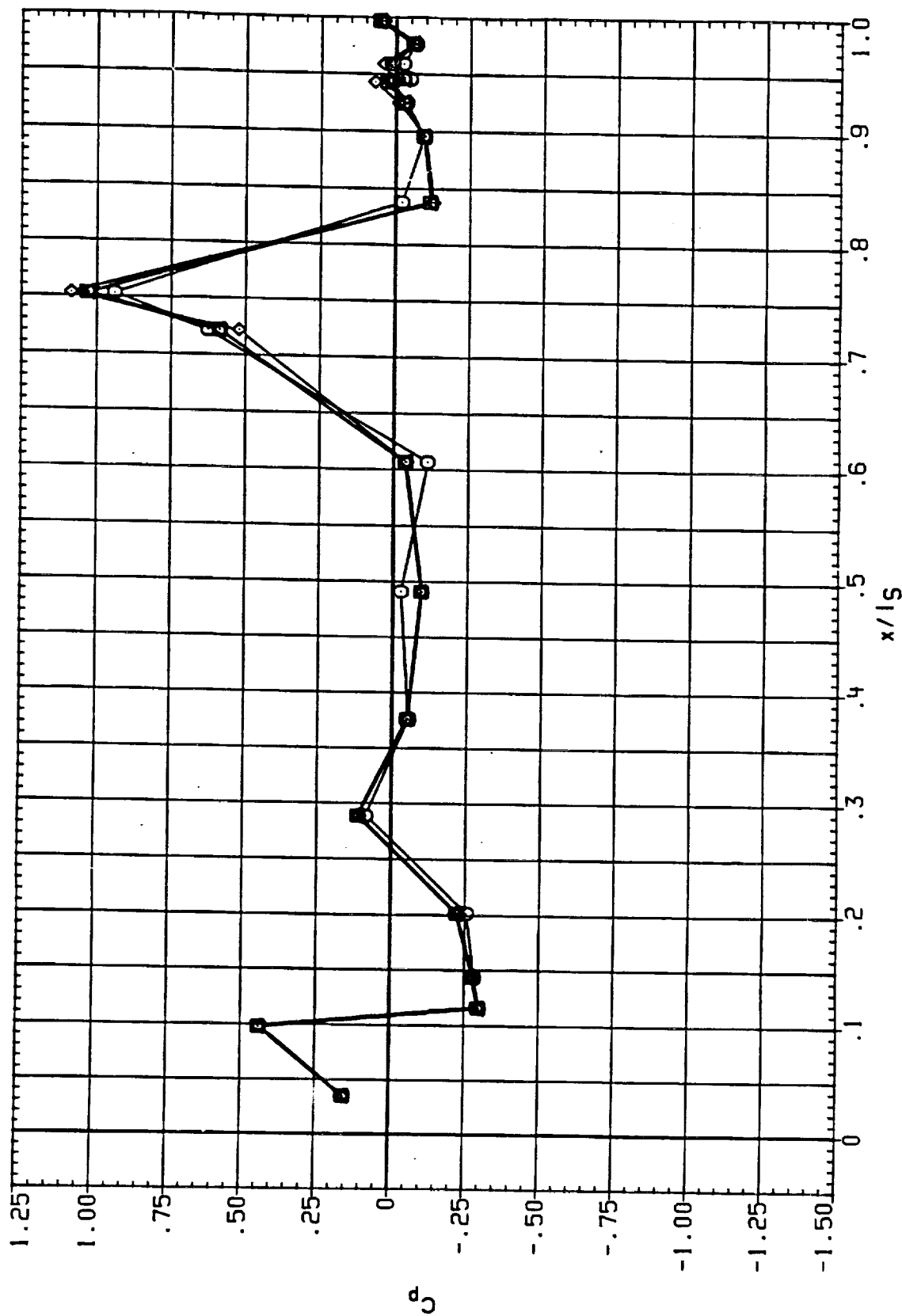


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB	MACH	IEABOX	IB-ELV	OB-ELV
(RC05H8)	○	IA613A.B/L OT+SRM+PLUMES SI.2	-LEFT SRB	1.400	.000	10.000	9.000
(RC0556)	◇	IA613A.B/L OT+SRM+PLUMES SI.3	-LEFT SRB	1.400	.000	10.000	5.000
(RC0591)	◇	IA613A.B/L OT+SRM+PLUMES SI.3	-LEFT SRB	1.400	180.000	10.000	5.000
(RC05C9)	△	IA613A.B/L OT+SRM+PLUMES SI.3	-LEFT SRB	1.400	999.000	10.000	5.000

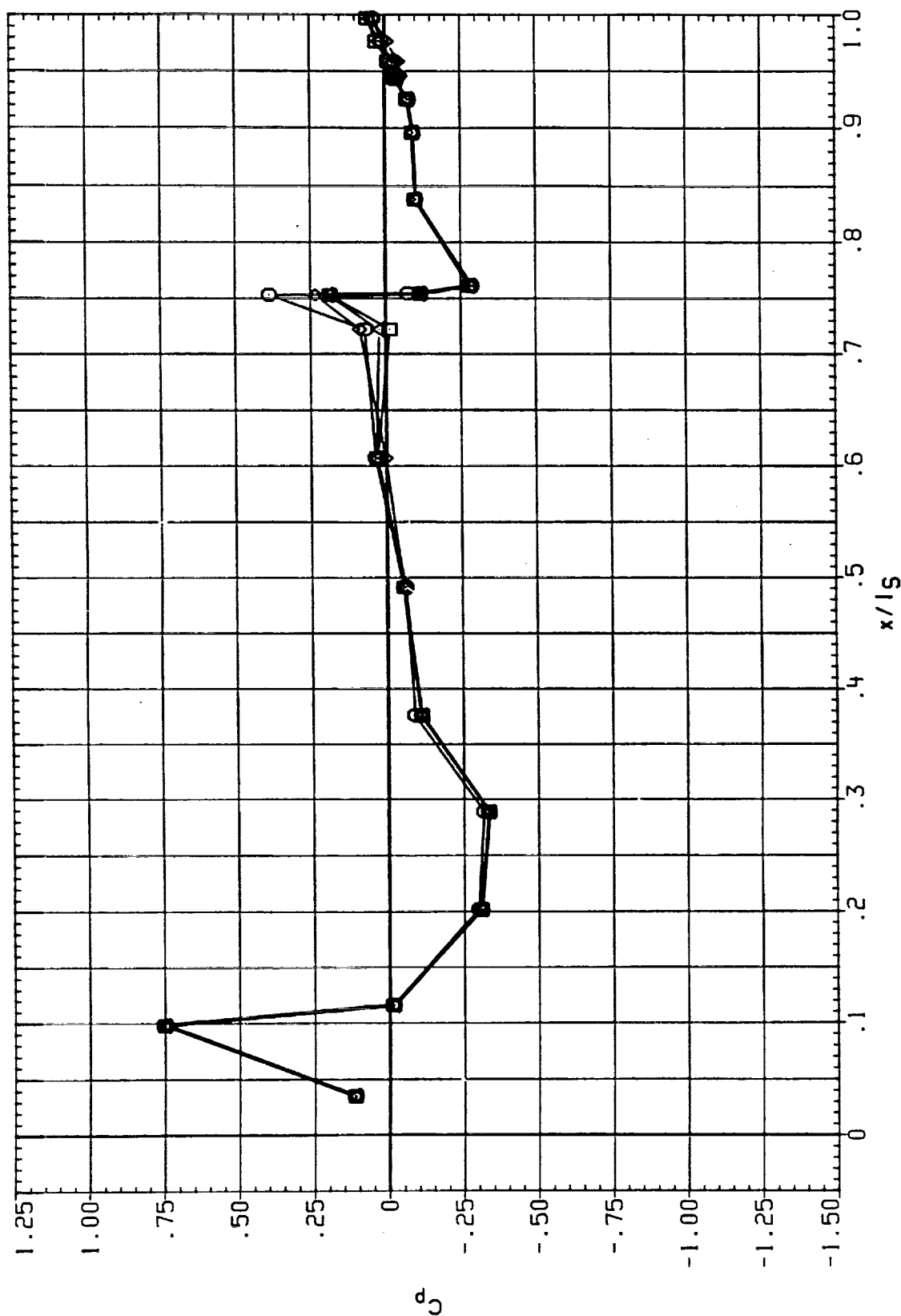


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 270.000 ALPHA = .000



DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOS49)	○	IA613A.B/L OT+SRM+PLUMES SI.2	1.550	.000	10.000	9.000
(RCOS57)	□	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	.000	10.000	5.000
(RCOS92)	◇	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	180.000	10.000	5.000
(RCOS00)	△	IA613A.B/L OT+SRM+PLUMES SI.3	1.550	999.000	10.000	5.000

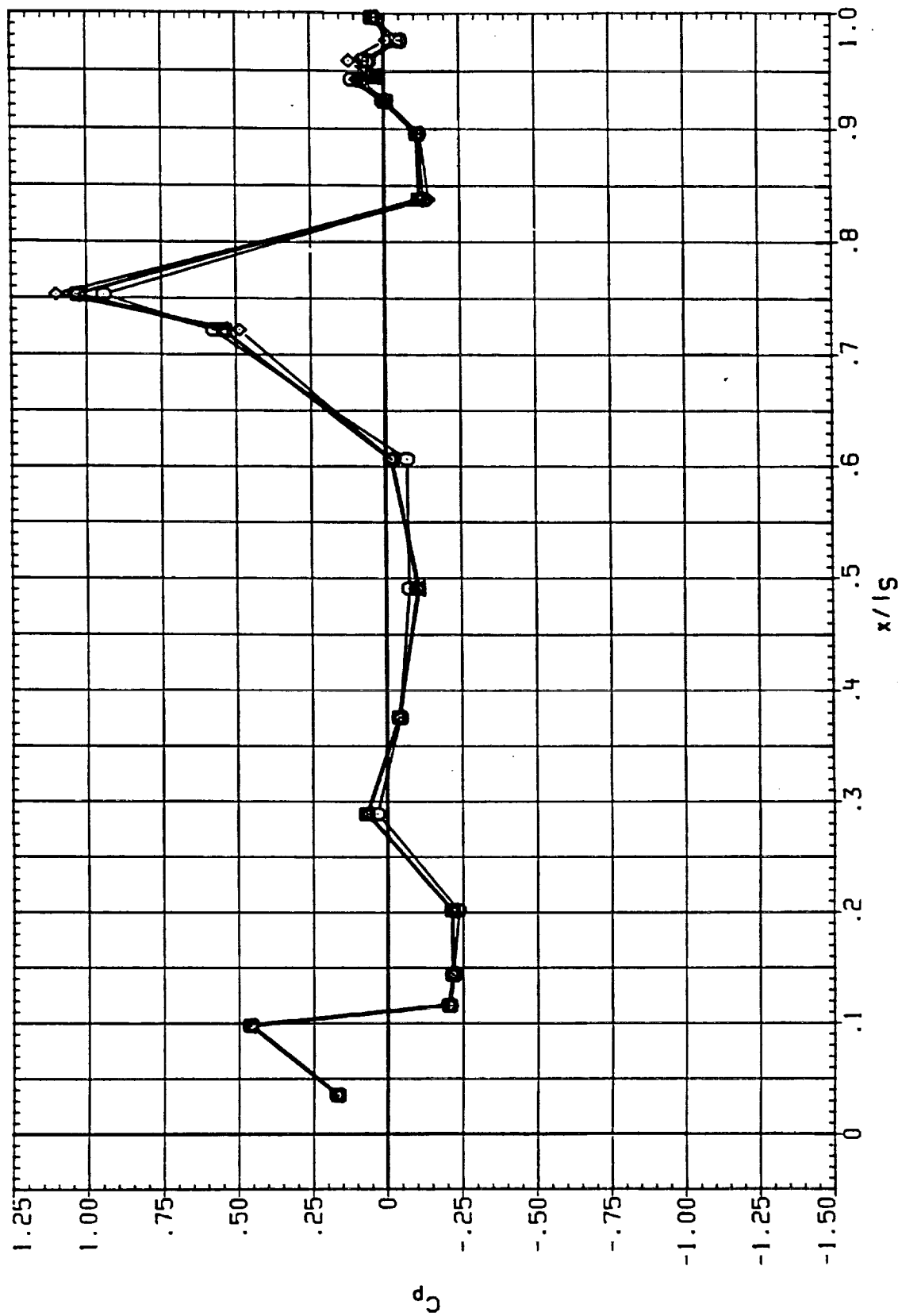


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 PHI = 225.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RC0549)	○	IA613A.B/L OT+PSRM+PLUMES S1.2	1.550	.000	10.000	9.000
(RC0557)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	.000	10.000	5.000
(RC0582)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	180.000	10.000	5.000
(RC0500)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	1.550	999.000	10.000	5.000

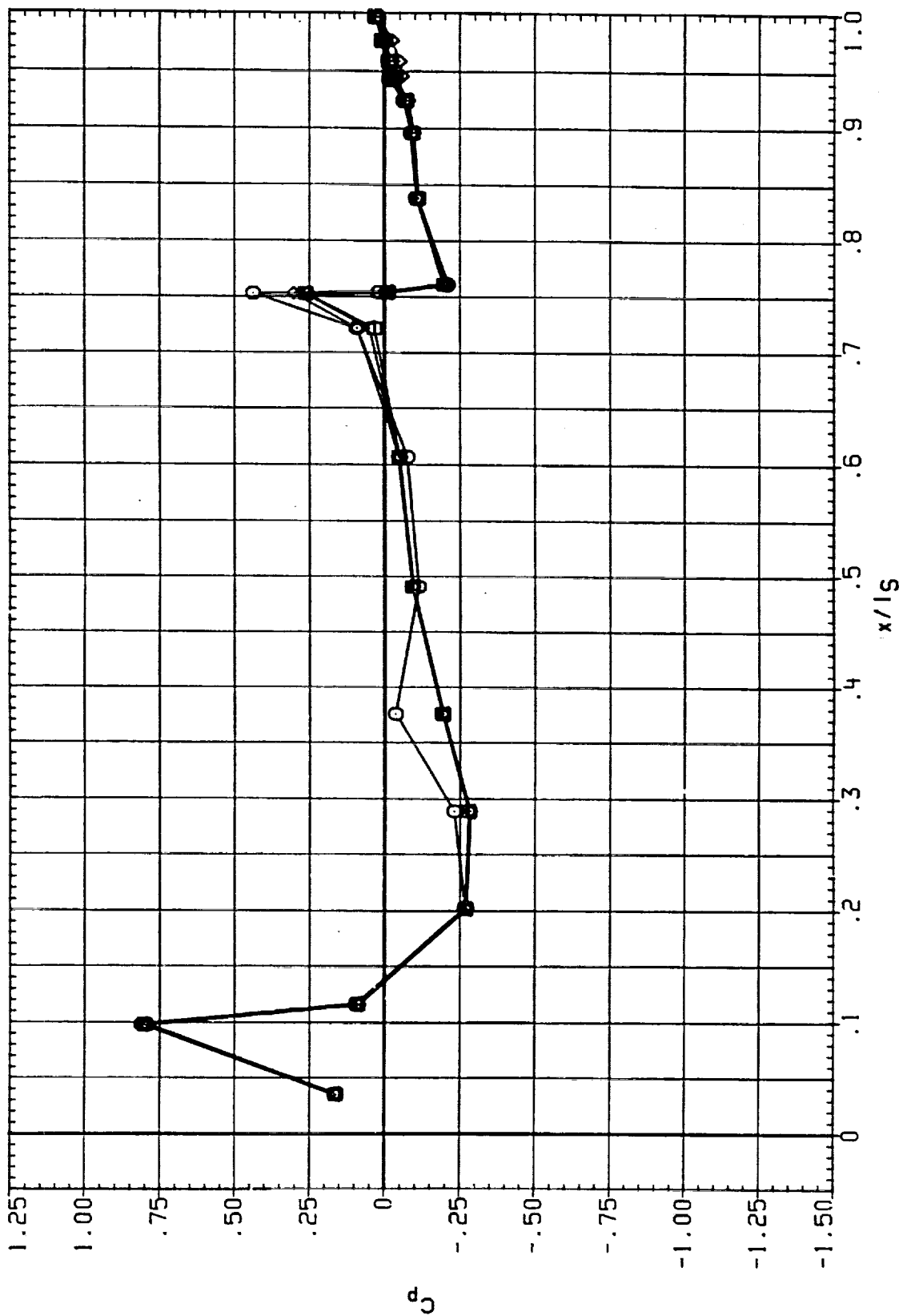


FIGURE 11 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB

BETA = .000 PHI = 270.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC15)	□	IA613A.B/L OT*ASRM*PLUMES SI.2	.600	.000	10.000	9.000
(RCOC42)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.600	.000	10.000	9.000
(RCOC80)	◇	IA613A.B/L OT*ASRM*PLUMES SI.2	.600	180.000	10.000	9.000
(RCOC11)	△	IA613A.B/L OT*ASRM*PLUMES SI.2	.600	999.000	10.000	5.000

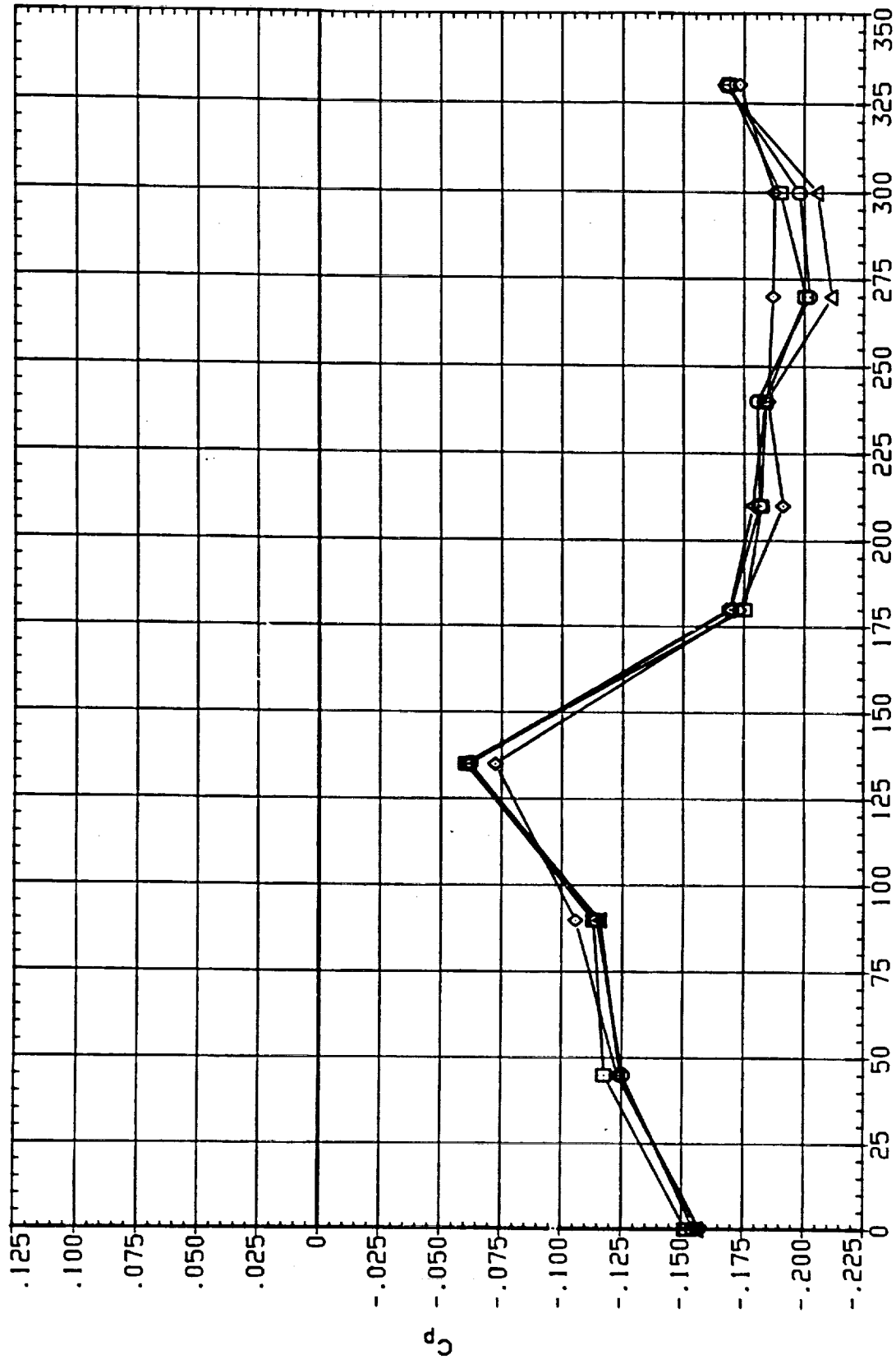


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC16)	○	IA613A, B/L OT+SRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOC43)	□	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	.000	10.000	9.000
(RCOC81)	◇	IA613A, B/L OT+ASRM+PLUMES SI.2	.800	180.000	10.000	9.000

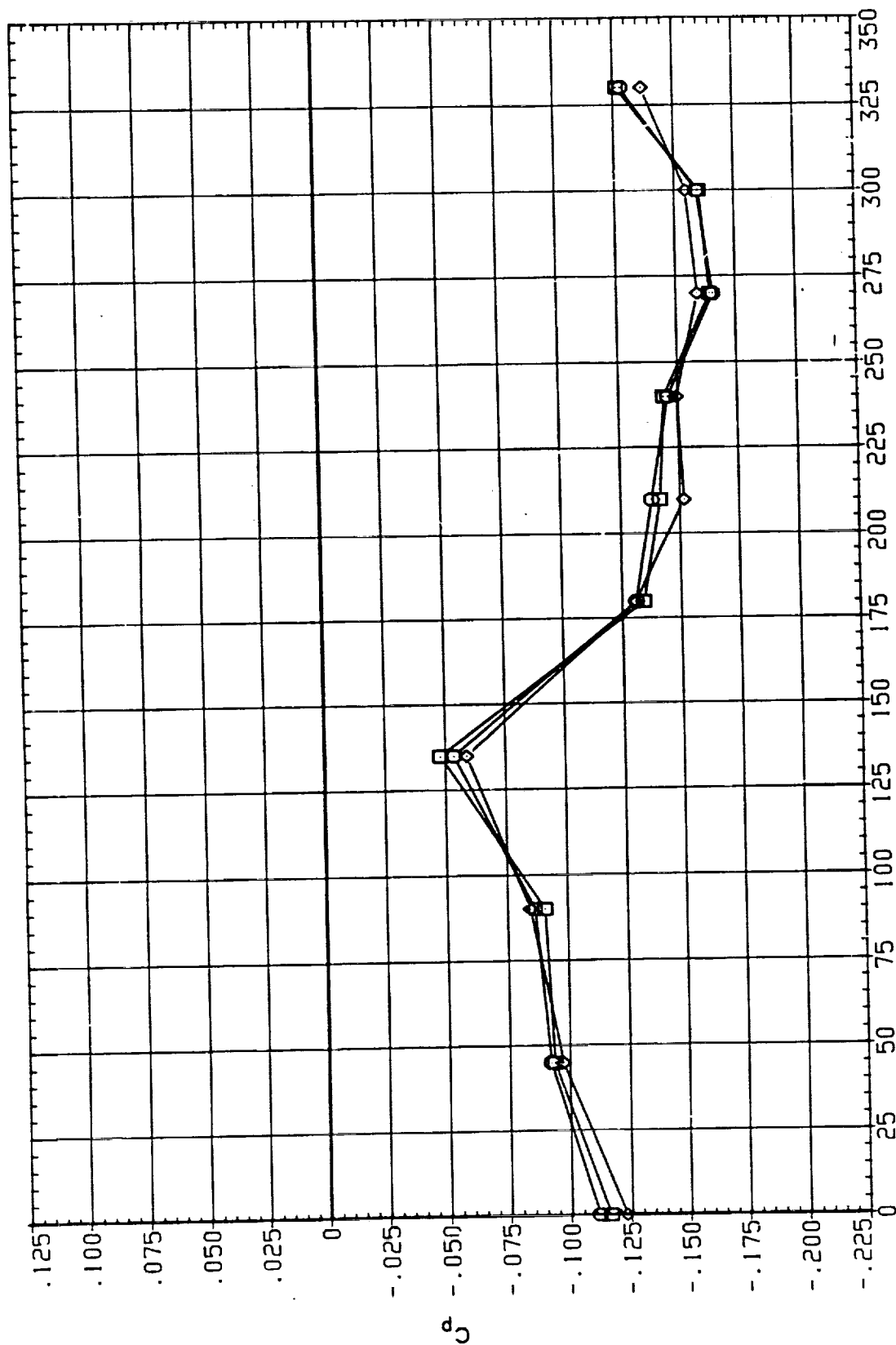


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC17)	□	IA613A, B/L OT+RSRH+PLUMES SI.2	.900	.000	10.000	9.000
(RCOC44)	◇	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	.000	10.000	9.000
(RCOC82)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	180.000	10.000	9.000
(RCOC82)	△	IA613A, B/L OT+ASRH+PLUMES SI.2	.900	999.000	10.000	5.000

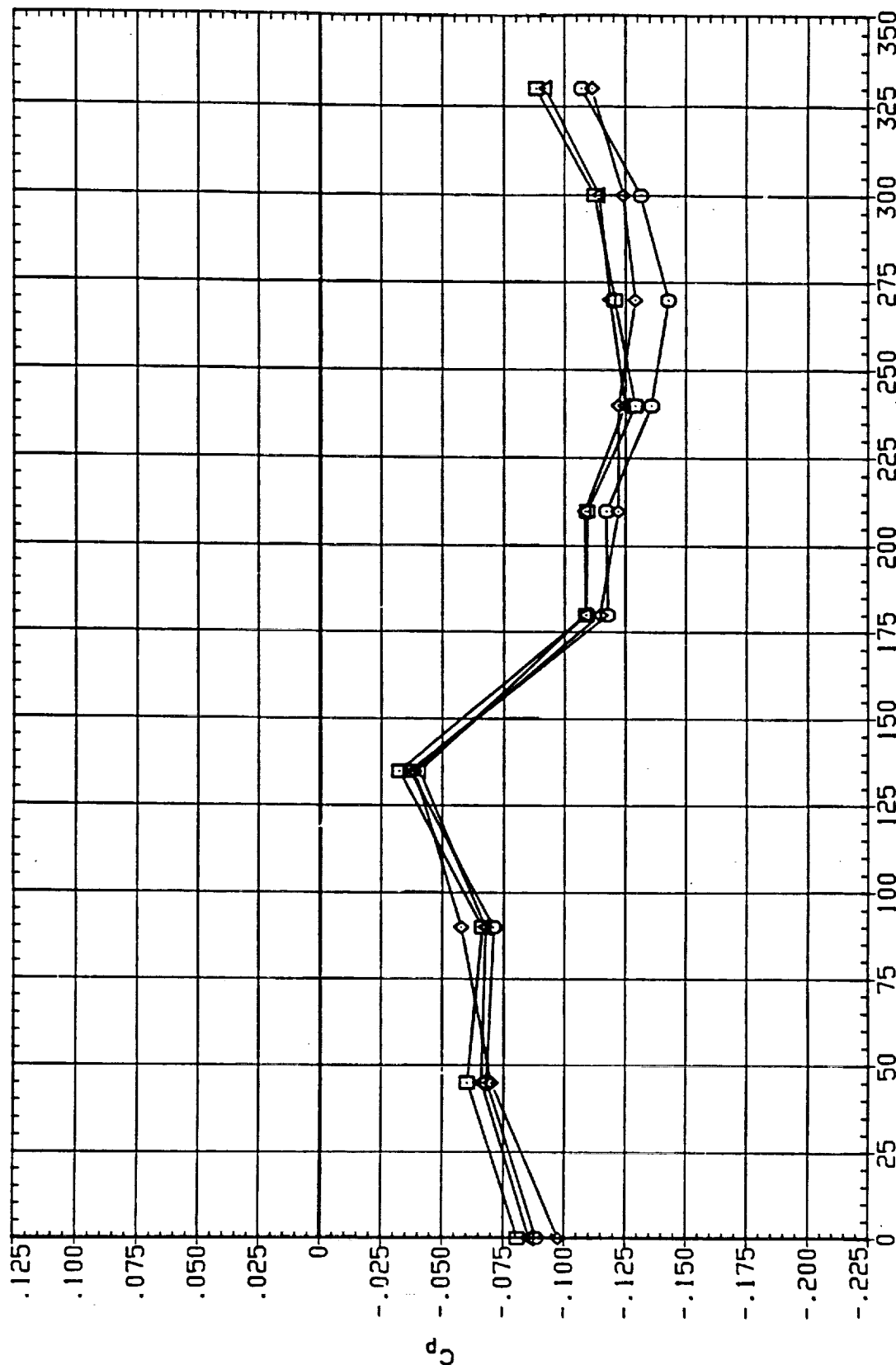


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	IEABOX	18-ELV	OB-ELV
(RCOC18)	○	IA613A.B/L OT+RSRH+PLUMES S1.2	.000	10.000	9.000
(RCOC45)	□	IA613A.B/L OT+ASRH+PLUMES S1.2	.000	10.000	9.000
(RCOC83)	◇	IA613A.B/L OT+ASRH+PLUMES S1.2	180.000	10.000	9.000

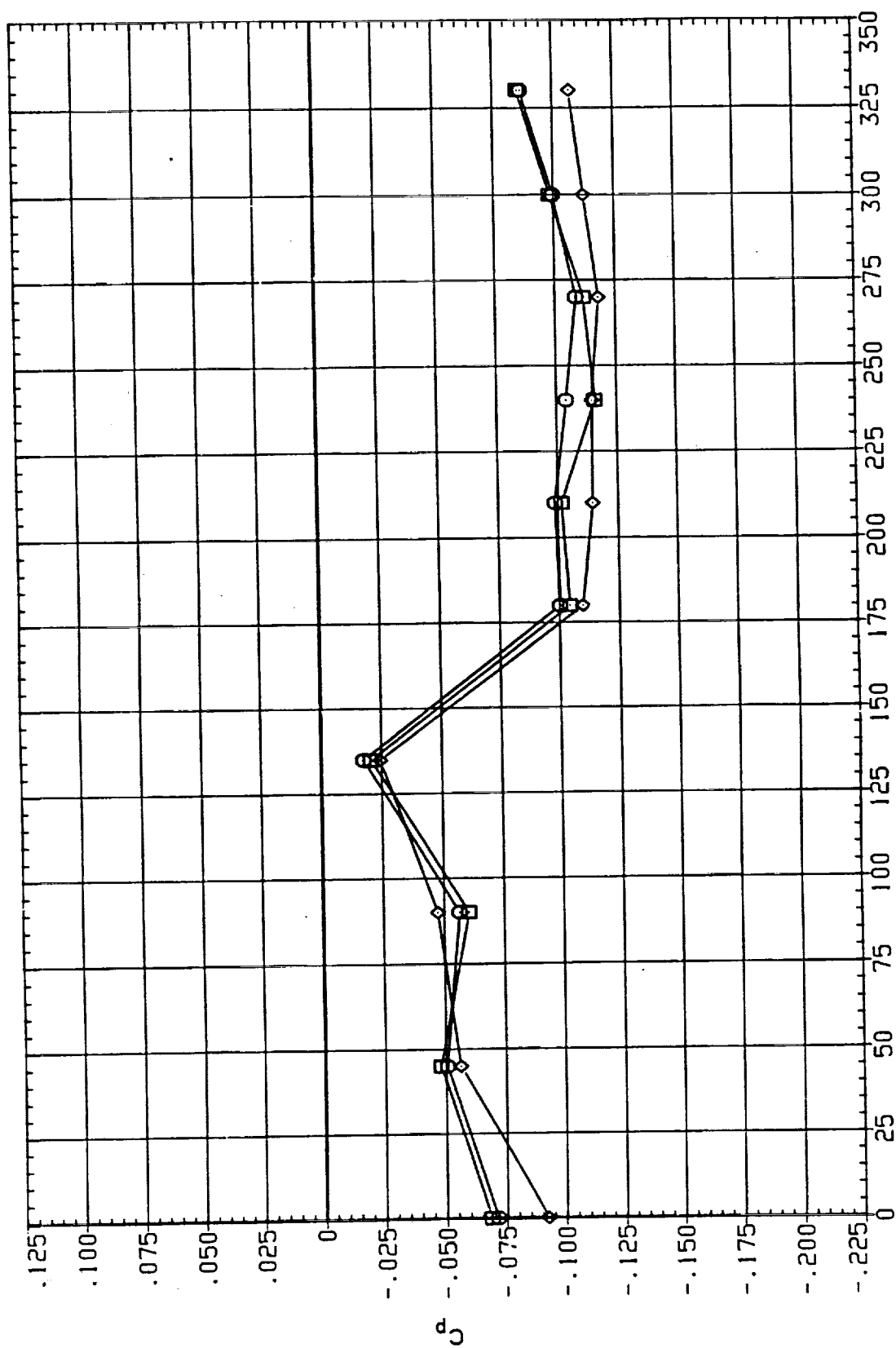


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS  
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC19)	□	IAG13A, B/L OT+RSRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOC46)	□	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.050	.000	10.000	9.000
(RCOC84)	◇	IAG13A, B/L OT+ASRH+PLUMES S1.2	1.050	180.000	10.000	9.000

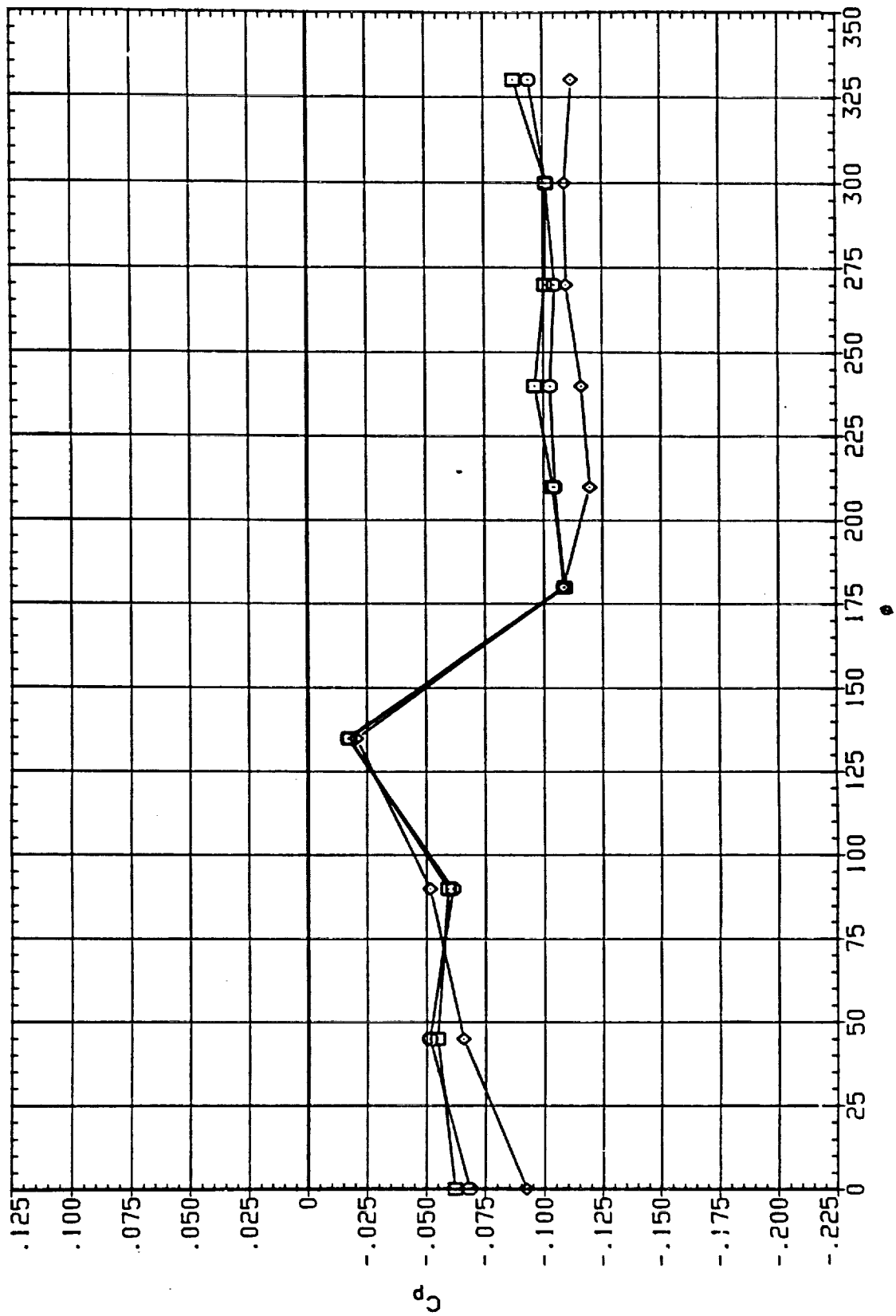


FIGURE 12 IAG13A SELECTED PRESSURE DISTRIBUTIONS  
 LEFT SRB BASE  
 BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONF IGURATION DESCRIPTION	LEFT SRB BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC20)	○	IA613A,B/L OT+SRM+PLUMES S1.2	-LEFT SRB BASE	1.100	.000	10.000	9.000
(RCOC47)	□	IA613A,B/L OT+SRM+PLUMES S1.2	-LEFT SRB BASE	1.100	.000	10.000	9.000
(RCOC85)	△	IA613A,B/L OT+SRM+PLUMES S1.2	-LEFT SRB BASE	1.100	180.000	10.000	9.000
(RCOC83)	◇	IA613A,B/L OT+SRM+PLUMES S1.2	-LEFT SRB BASE	1.100	999.000	10.000	5.000

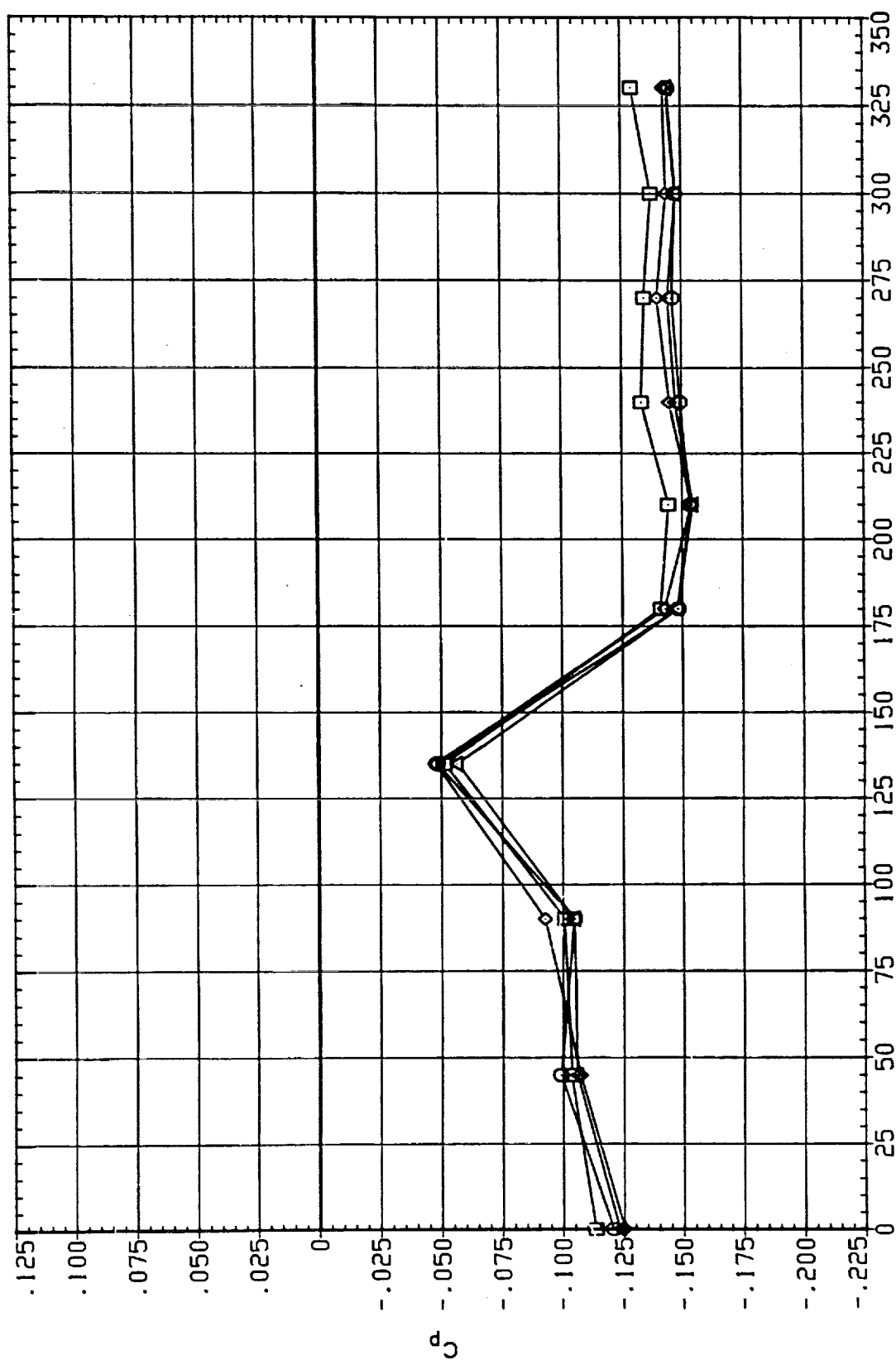


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000



DATA SET SYMBOL

CONFIGURATION DESCRIPTION

LEFT SRB BASE  
LEFT SRB BASE  
LEFT SRB BASE

MACH

1EABOX

1B-ELV  
1B-ELV  
1B-ELV

08-ELV

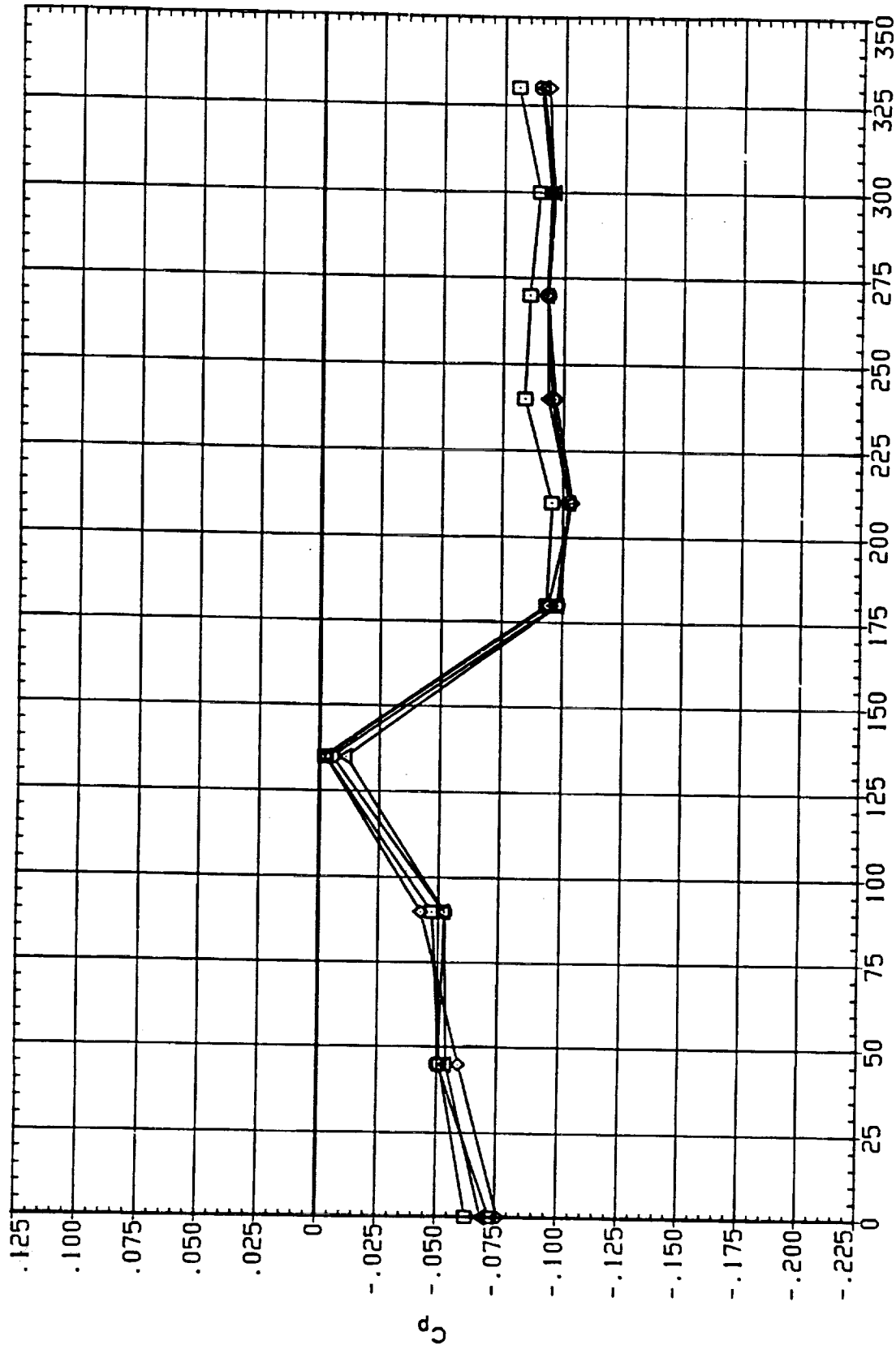


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET SYMBOL CONFIGURATION DESCRIPTION MACH IEABOX IB-ELV OB-ELV

(RCOC22)	□	IA613A, B/L OT+RSRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOC49)	□	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	.000	10.000	9.000
(RCOC87)	◇	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	180.000	10.000	9.000
(RCOC65)	△	IA613A, B/L OT+ASRM+PLUMES S1.2	1.250	999.000	10.000	5.000

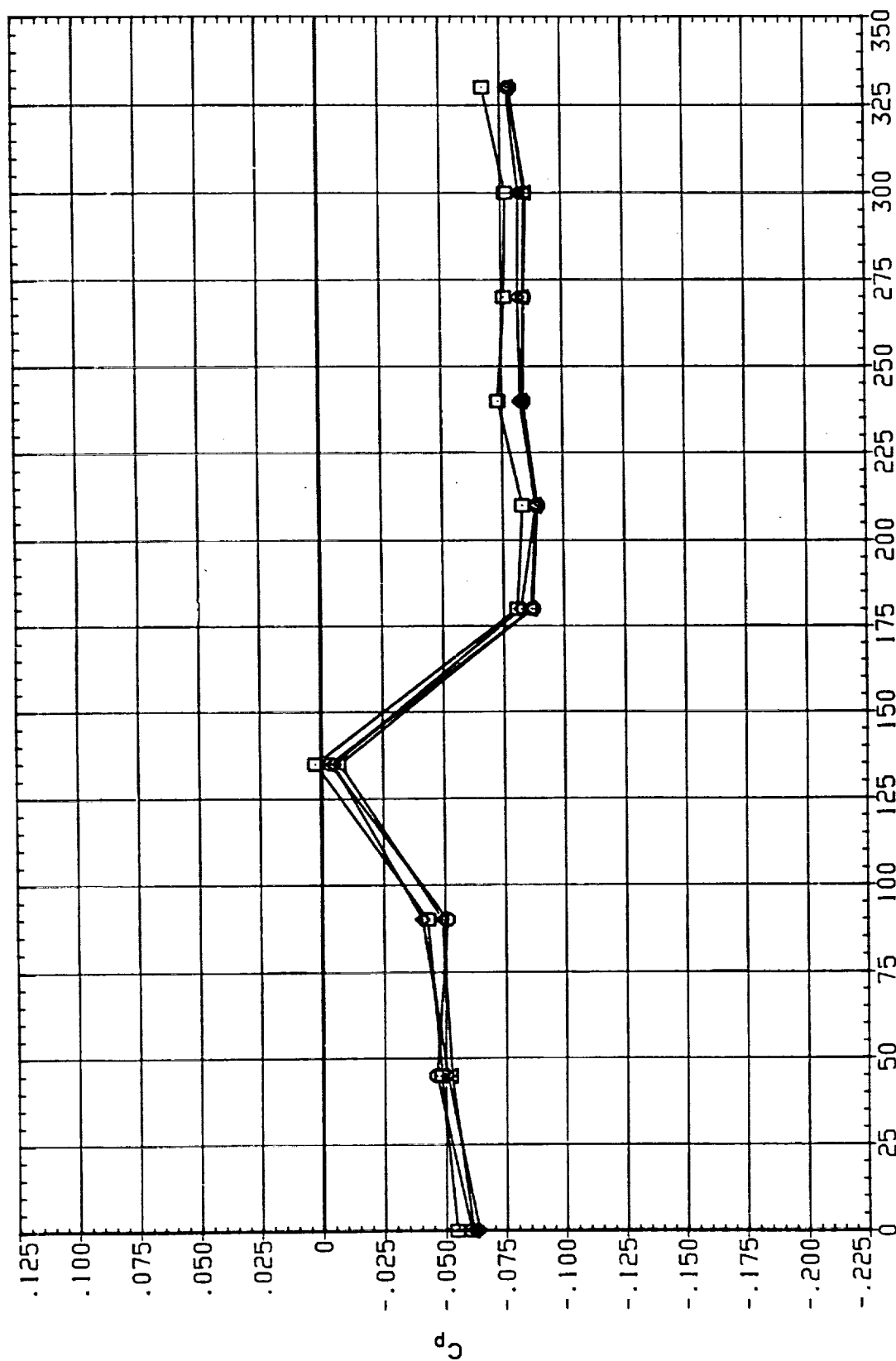


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB BASE  
BETA = .000 X/L5 = 1.000 ALPHA = .000

C-5

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOC6)	□	IA613A,B/L 01+RSRH+PLUMES SI.2	1.300	.000	10.000	9.000
(RCOC54)	□	IA613A,B/L 01+ASRH+PLUMES SI.3	1.300	.000	10.000	5.000
(RCOC89)	◇	IA613A,B/L 01+ASRH+PLUMES SI.3	1.300	180.000	10.000	5.000
(RCOC7)	△	IA613A,B/L 01+ASRH+PLUMES SI.3	1.300	999.000	10.000	5.000

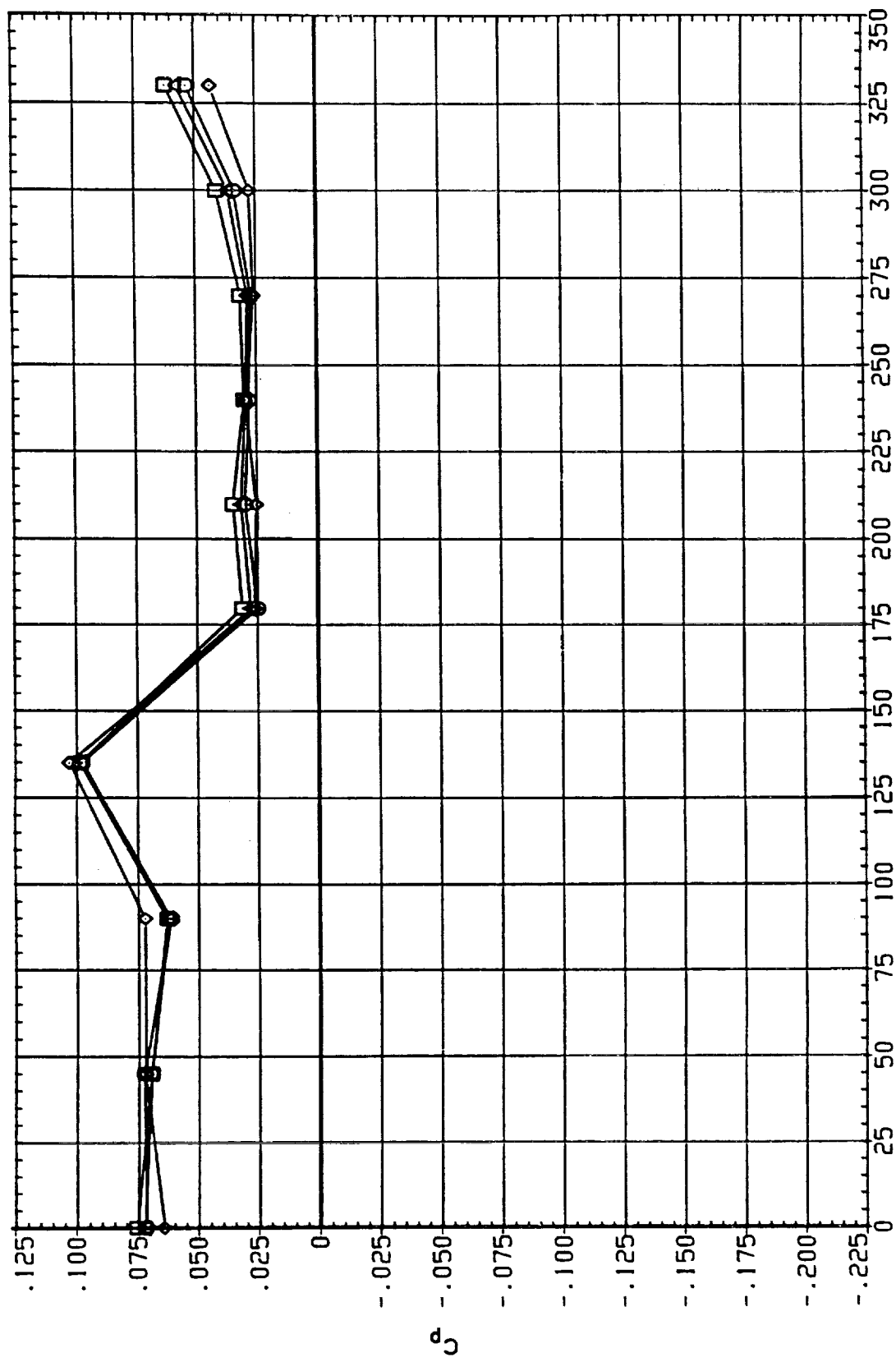


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	MACH	IEABOX	IB-ELV	OB-ELV
(RCOCH7)	□	IA613A, B/L OT+RSRH+PLUMES S1.2	1.350	.000	10.000	9.000
(RCOC55)	□	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	.000	10.000	5.000
(RCOC90)	◇	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	180.000	10.000	5.000
(RCOC88)	△	IA613A, B/L OT+ASRH+PLUMES S1.3	1.350	999.000	10.000	5.000

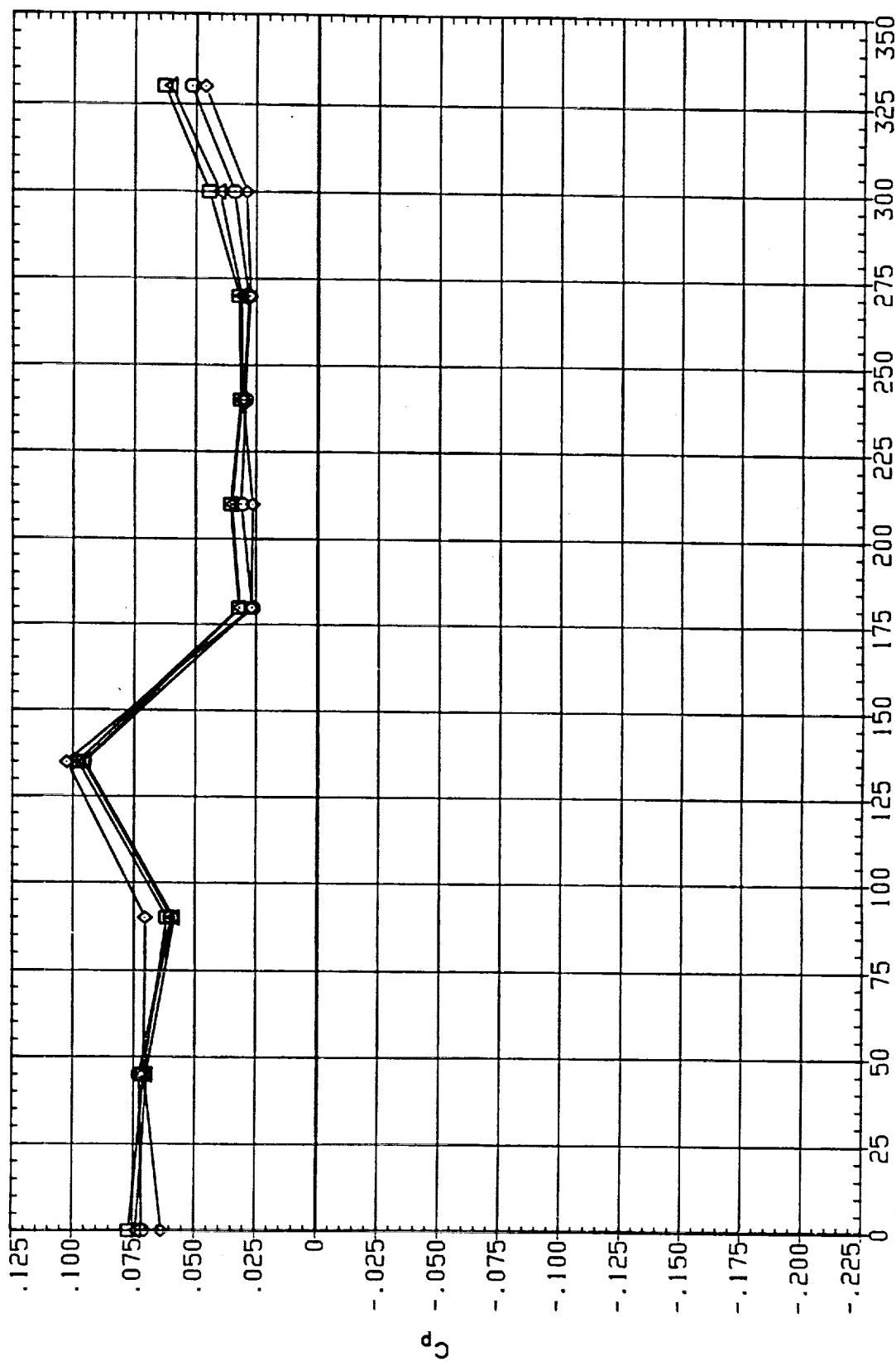


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS  
LEFT SRB BASE

BETA = .000 X/L = 1.000 ALPHA = .000 PAGE 286

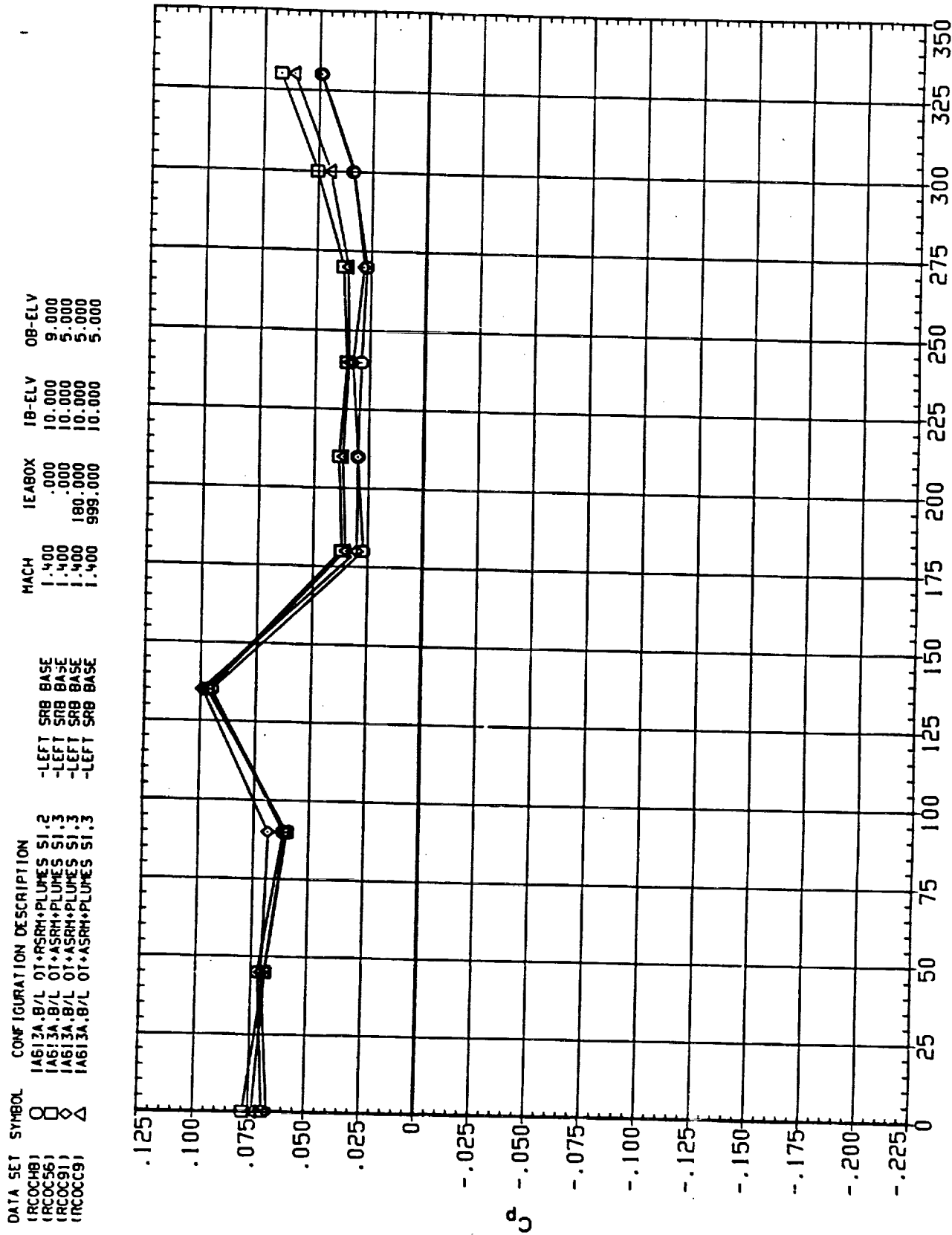


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000

DATA SET	SYMBOL	CONFIGURATION DESCRIPTION	LEFT SRB BASE	MACH	IEABOX	IB-ELV	OB-ELV
(RCOCH9)	○	IA613A.B/L OT+RSRM+PLUMES S1.2	-LEFT SRB BASE	1.550	.000	10.000	9.000
(RCOC57)	□	IA613A.B/L OT+ASRM+PLUMES S1.3	-LEFT SRB BASE	1.550	.000	10.000	5.000
(RCOC92)	◇	IA613A.B/L OT+ASRM+PLUMES S1.3	-LEFT SRB BASE	1.550	180.000	10.000	5.000
(RCOC00)	△	IA613A.B/L OT+ASRM+PLUMES S1.3	-LEFT SRB BASE	1.550	999.000	10.000	5.000

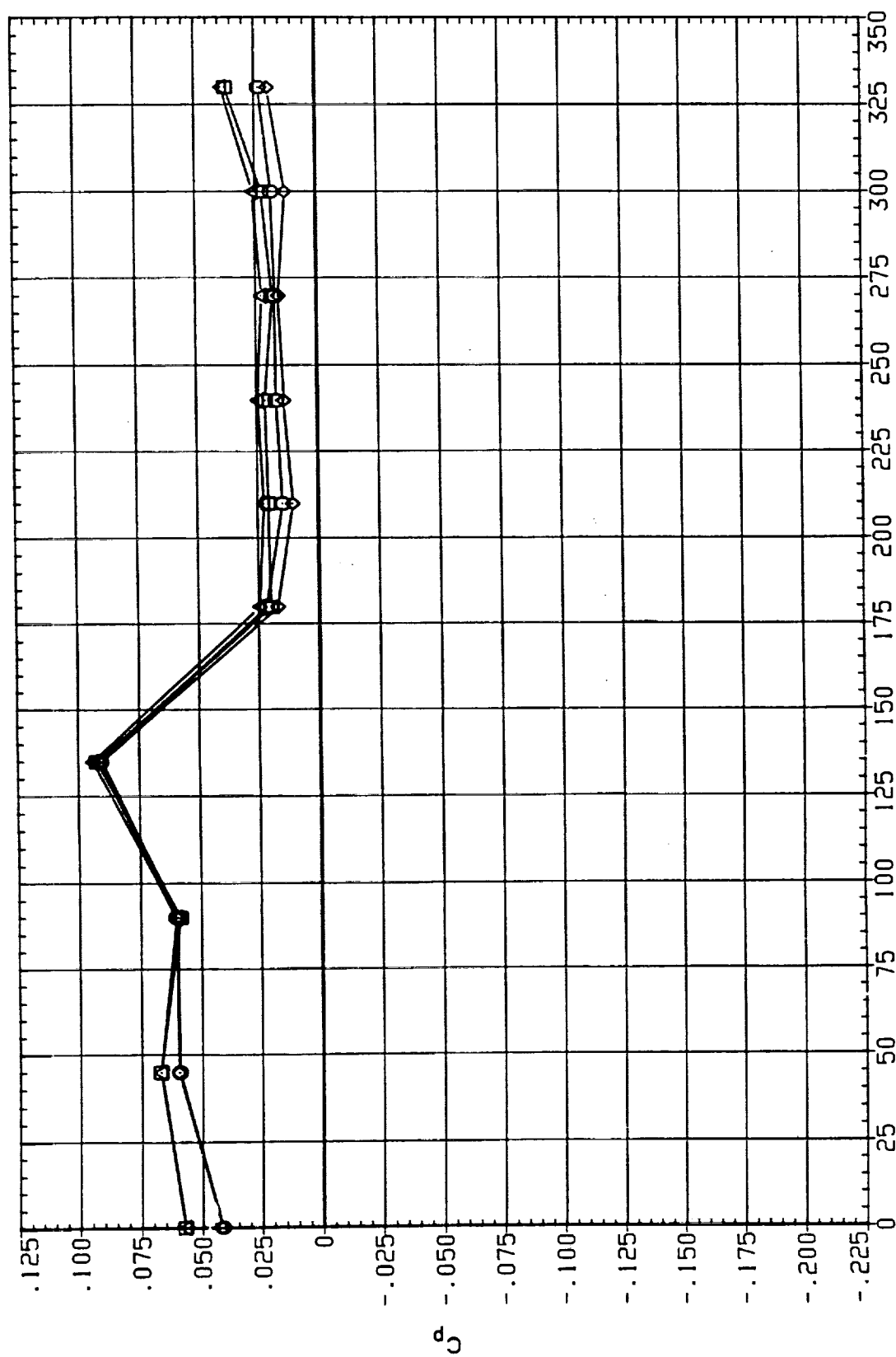


FIGURE 12 IA613A SELECTED PRESSURE DISTRIBUTIONS

BETA = .000 X/LS = 1.000 ALPHA = .000